

FIG. 1A

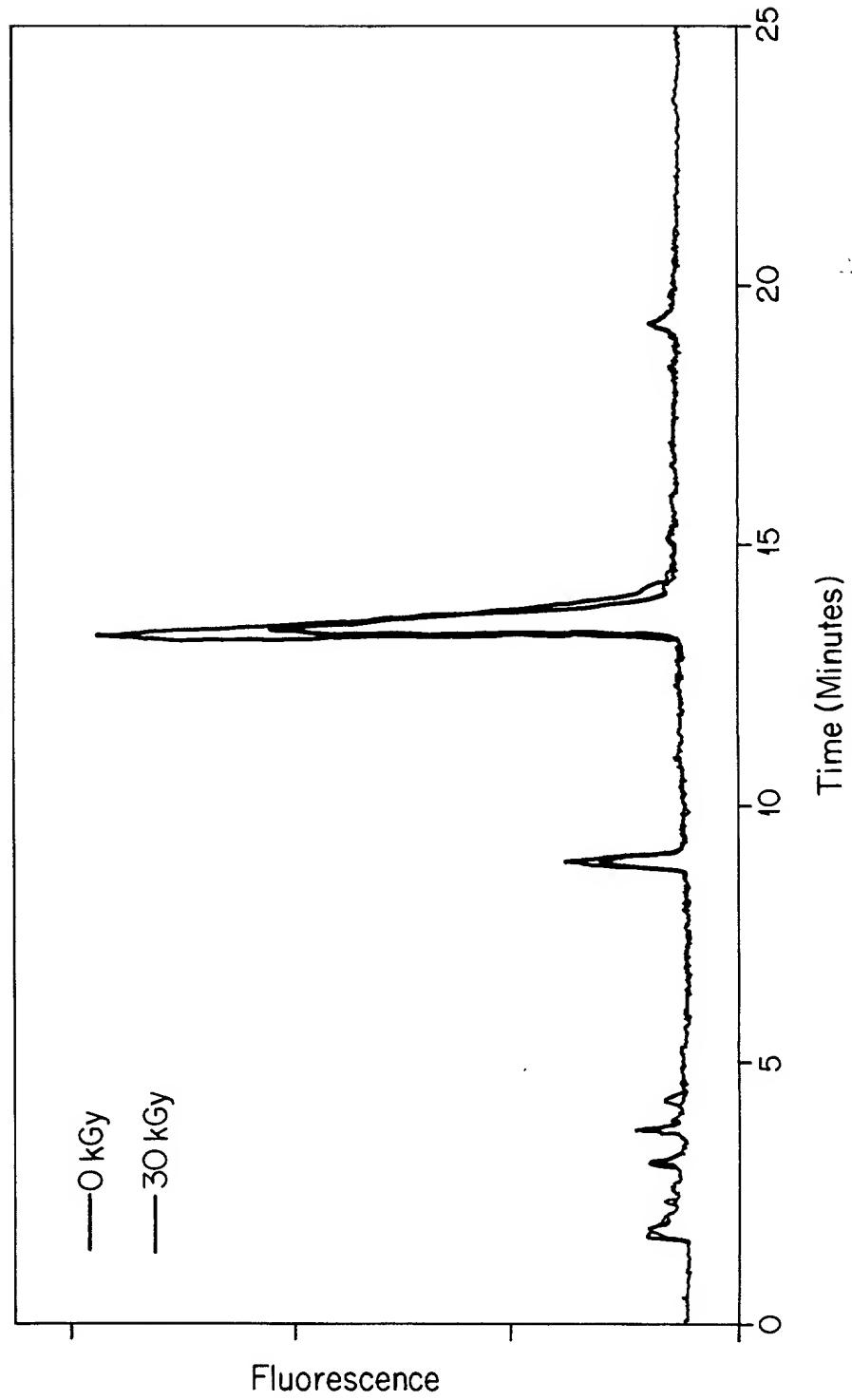


FIG. 1B

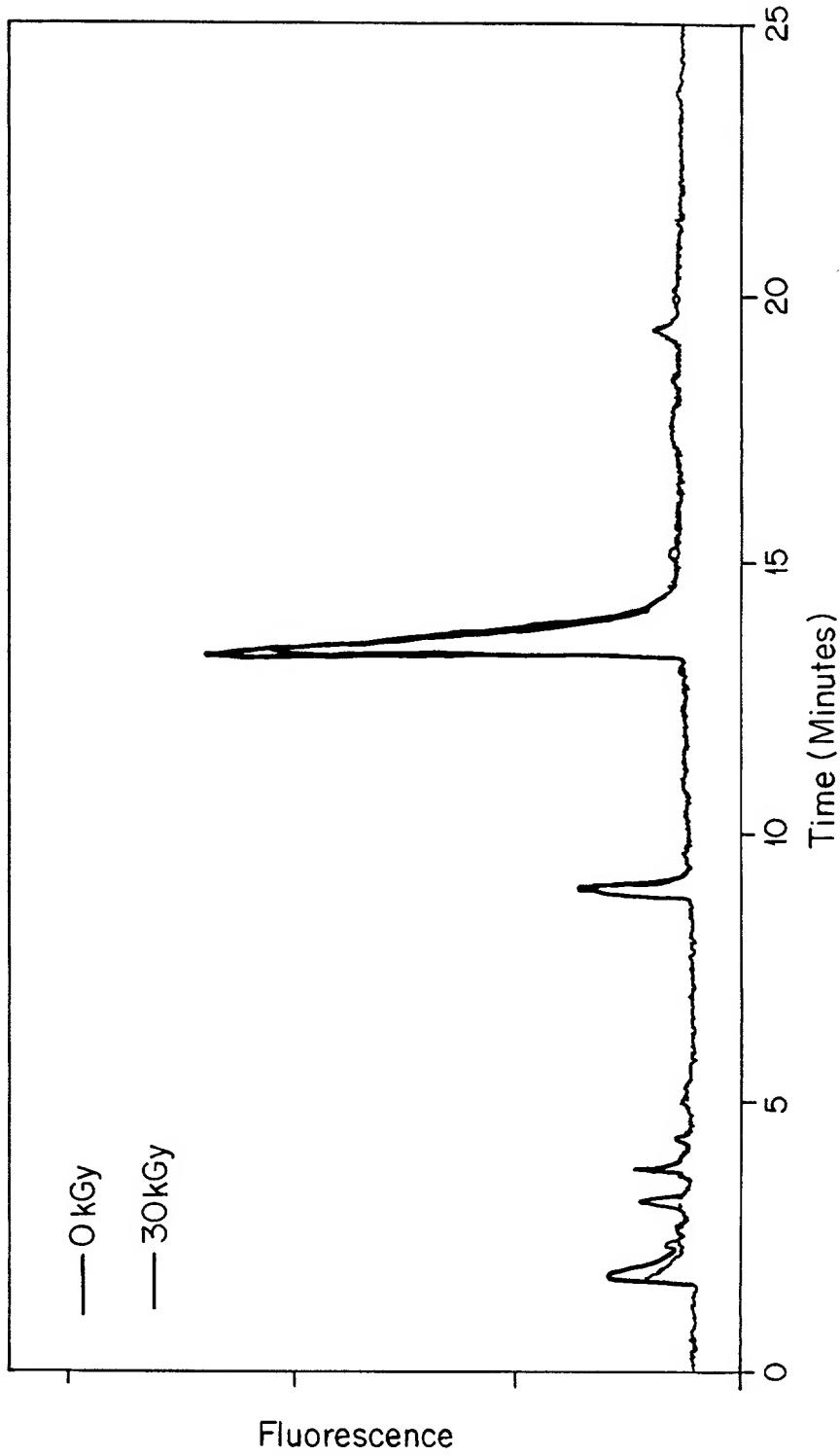


FIG. 1C

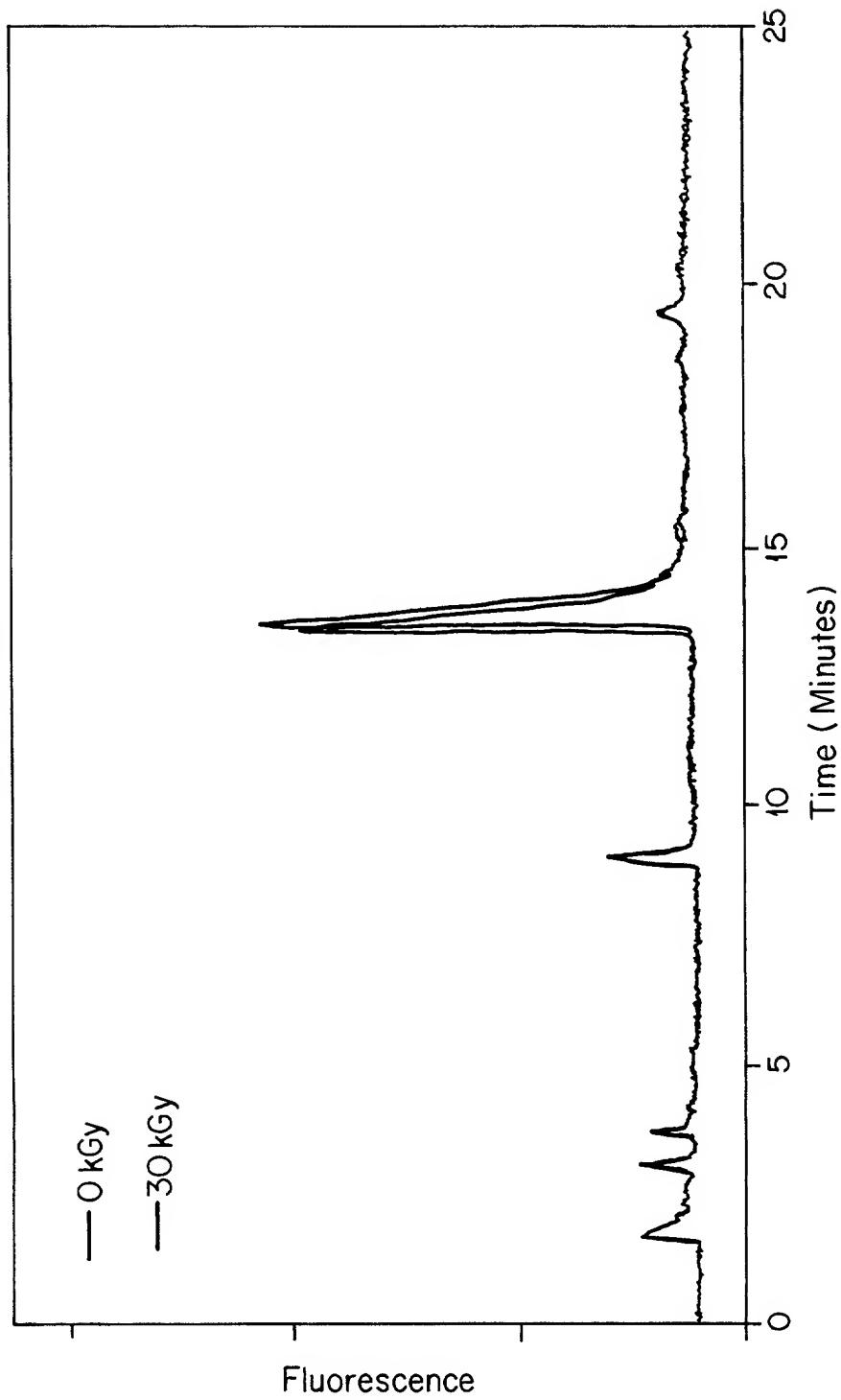


FIG. 2A

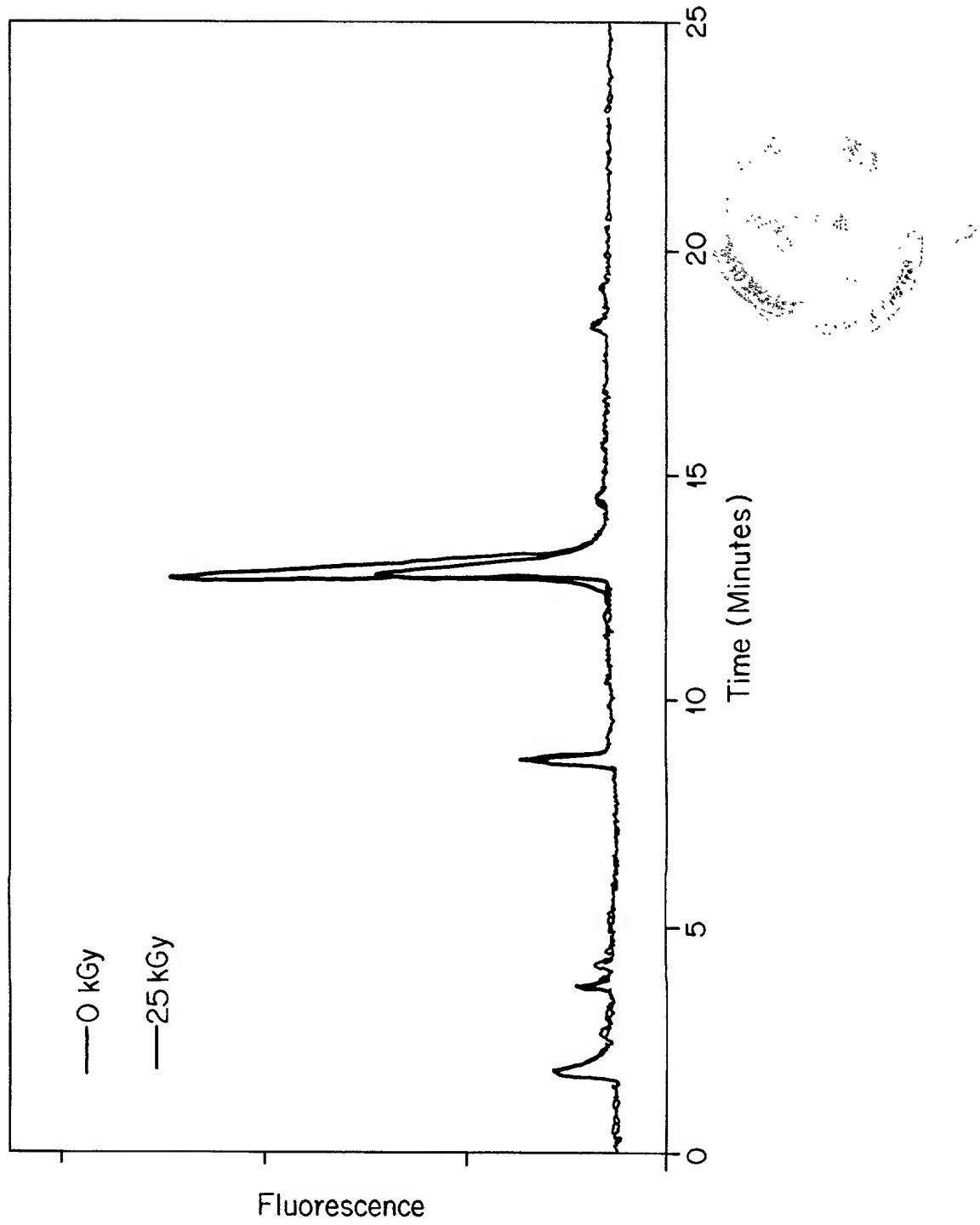


FIG. 2B

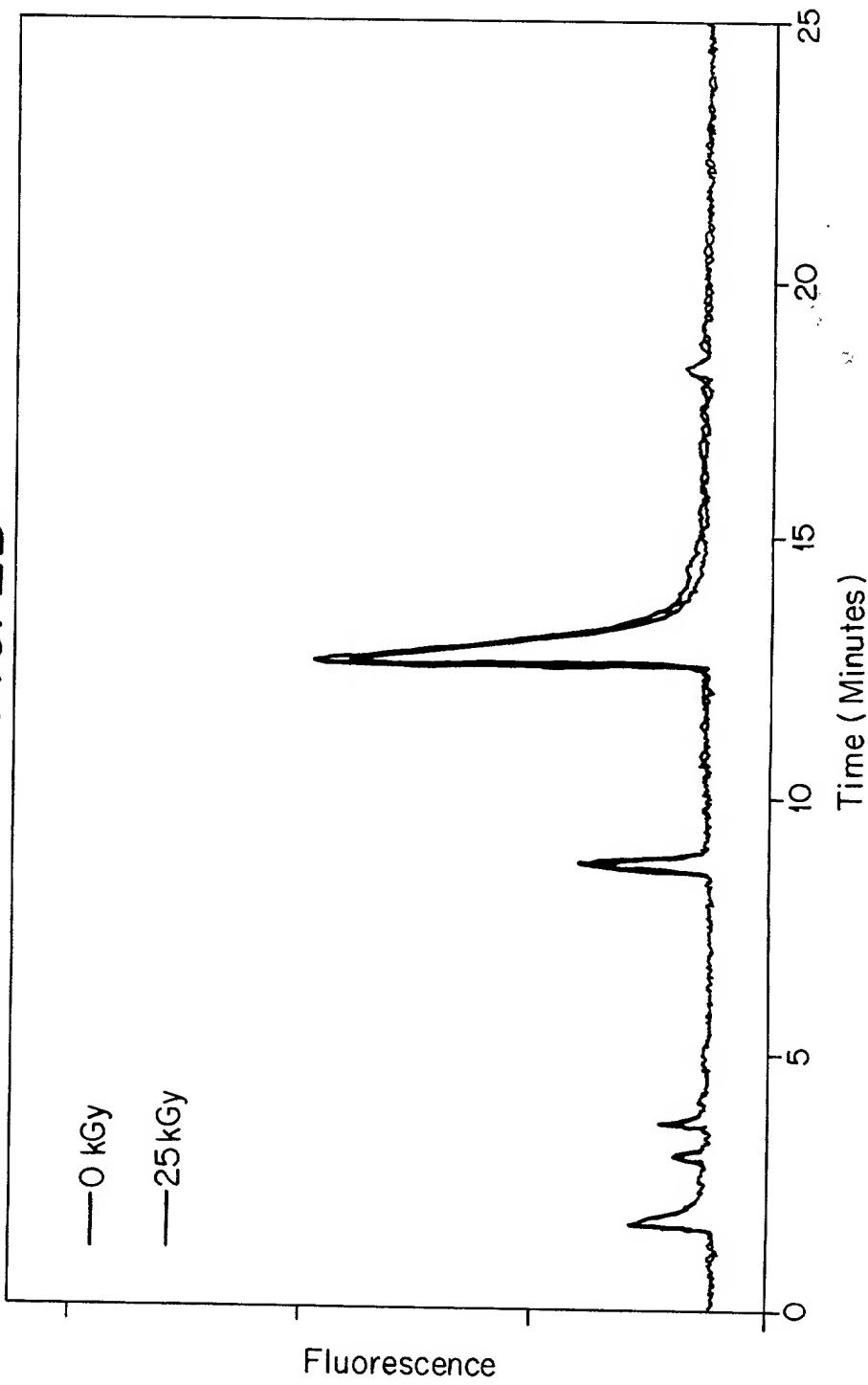


FIG. 1D REDUCED

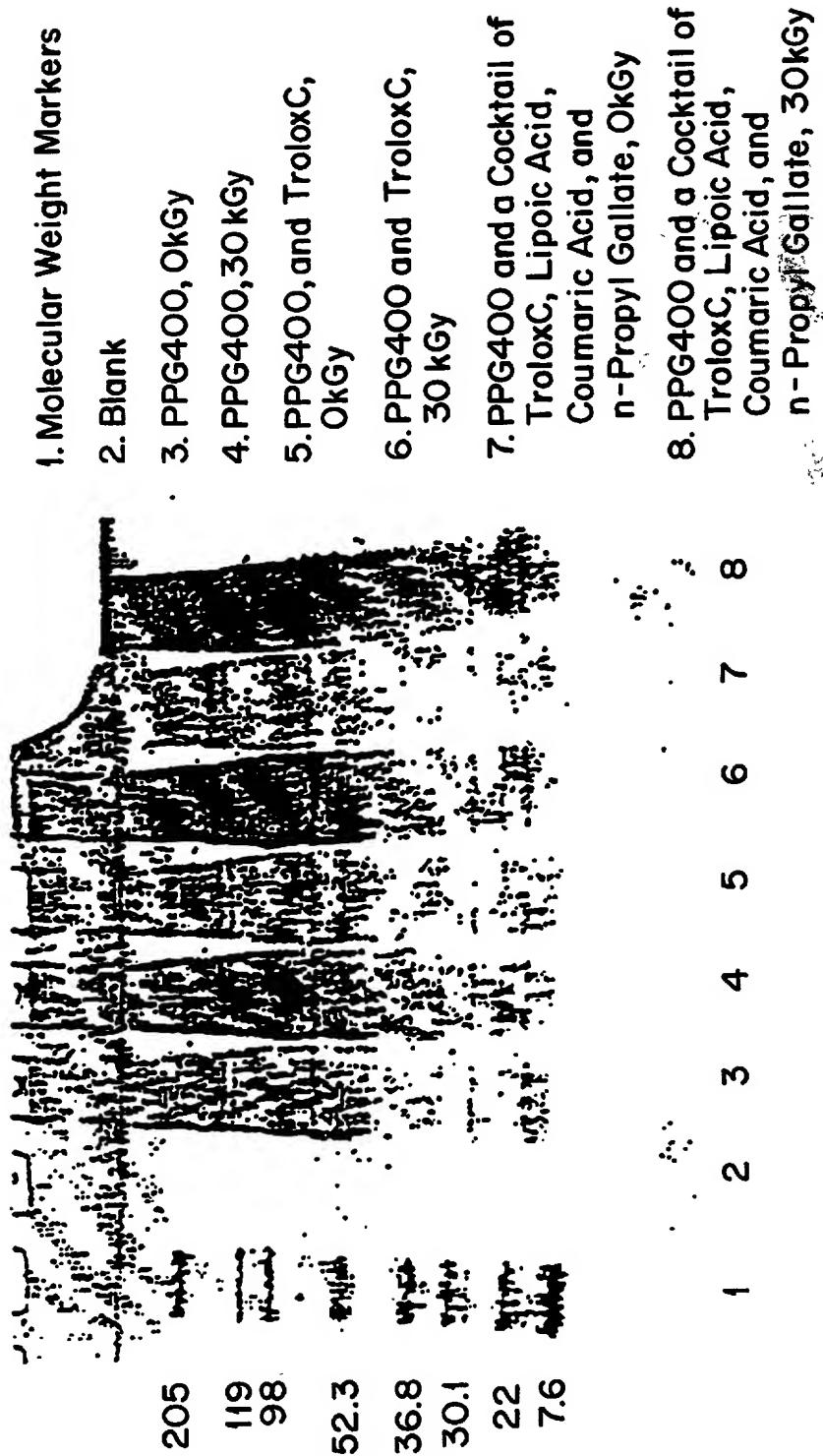


FIG. 2C

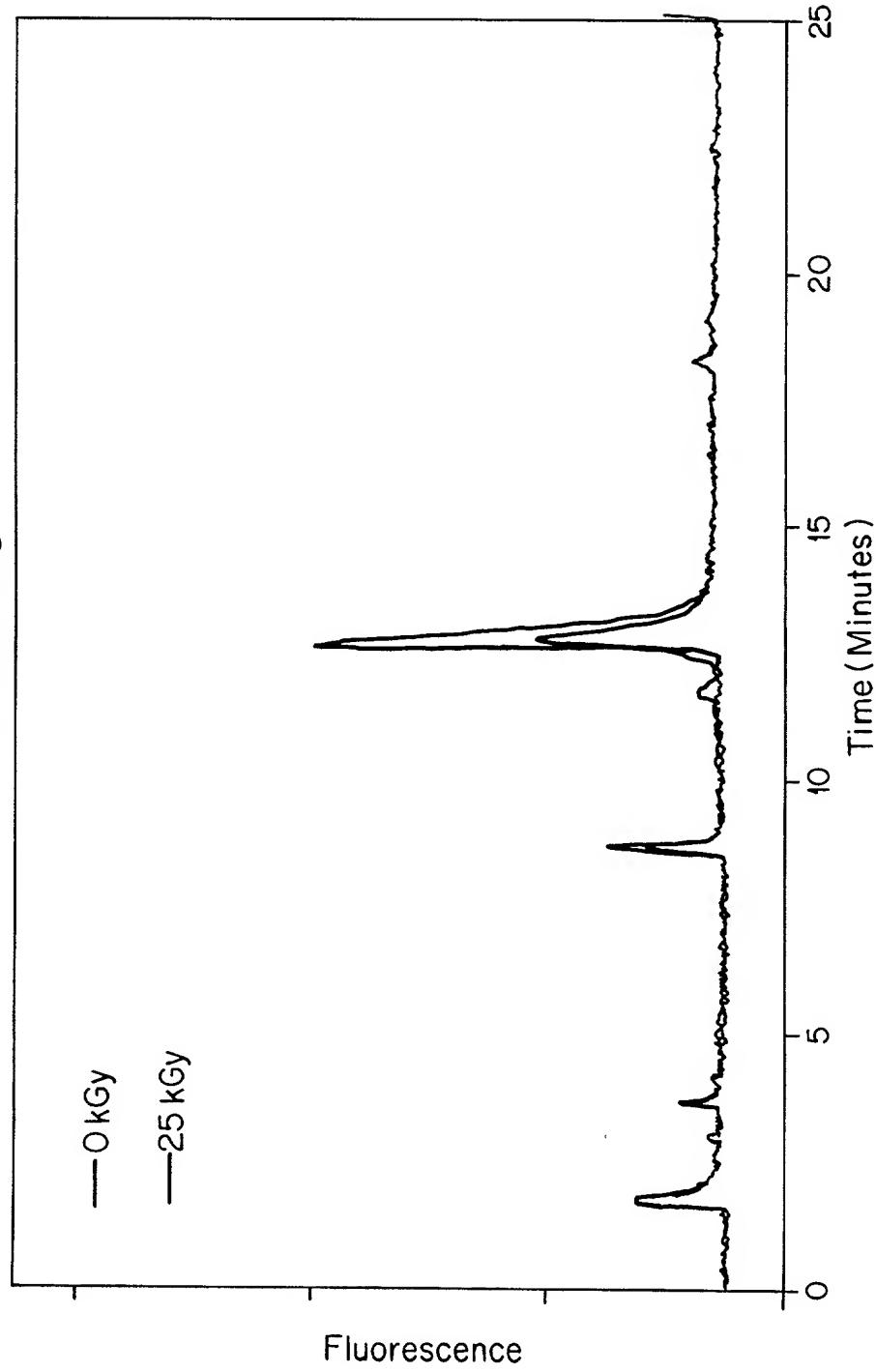


FIG. 2D

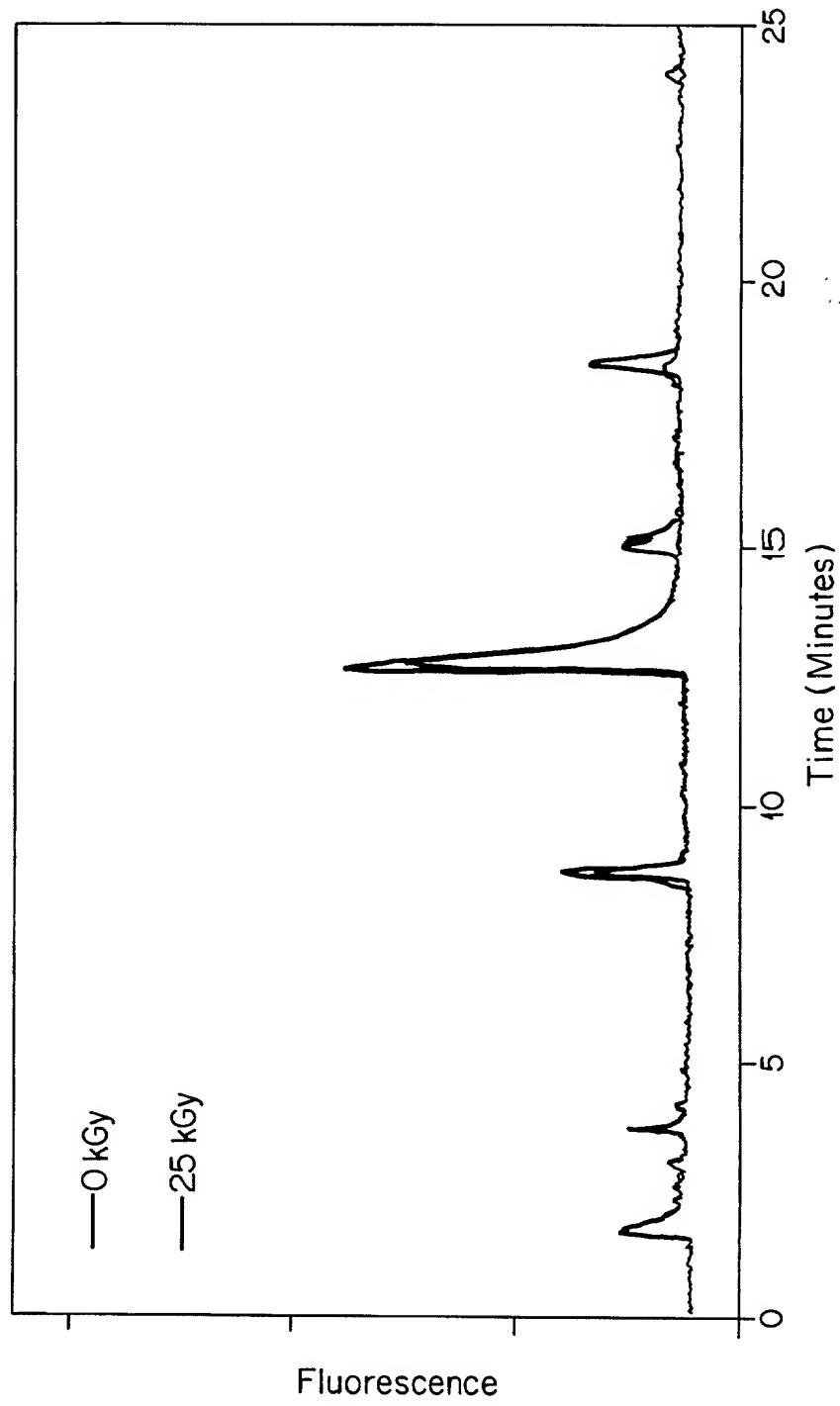


FIG. 2E

REDUCED

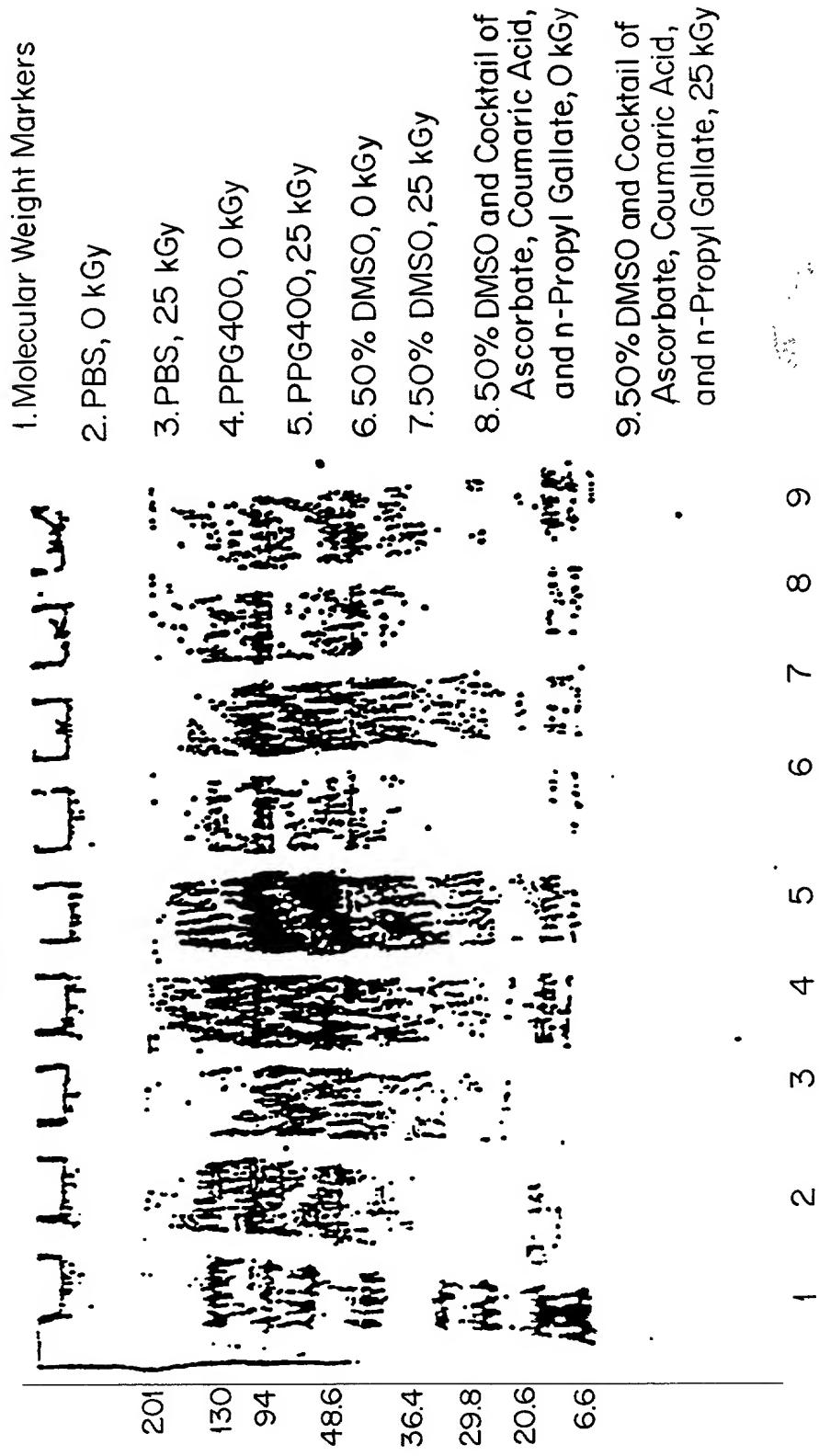


FIG. 3A

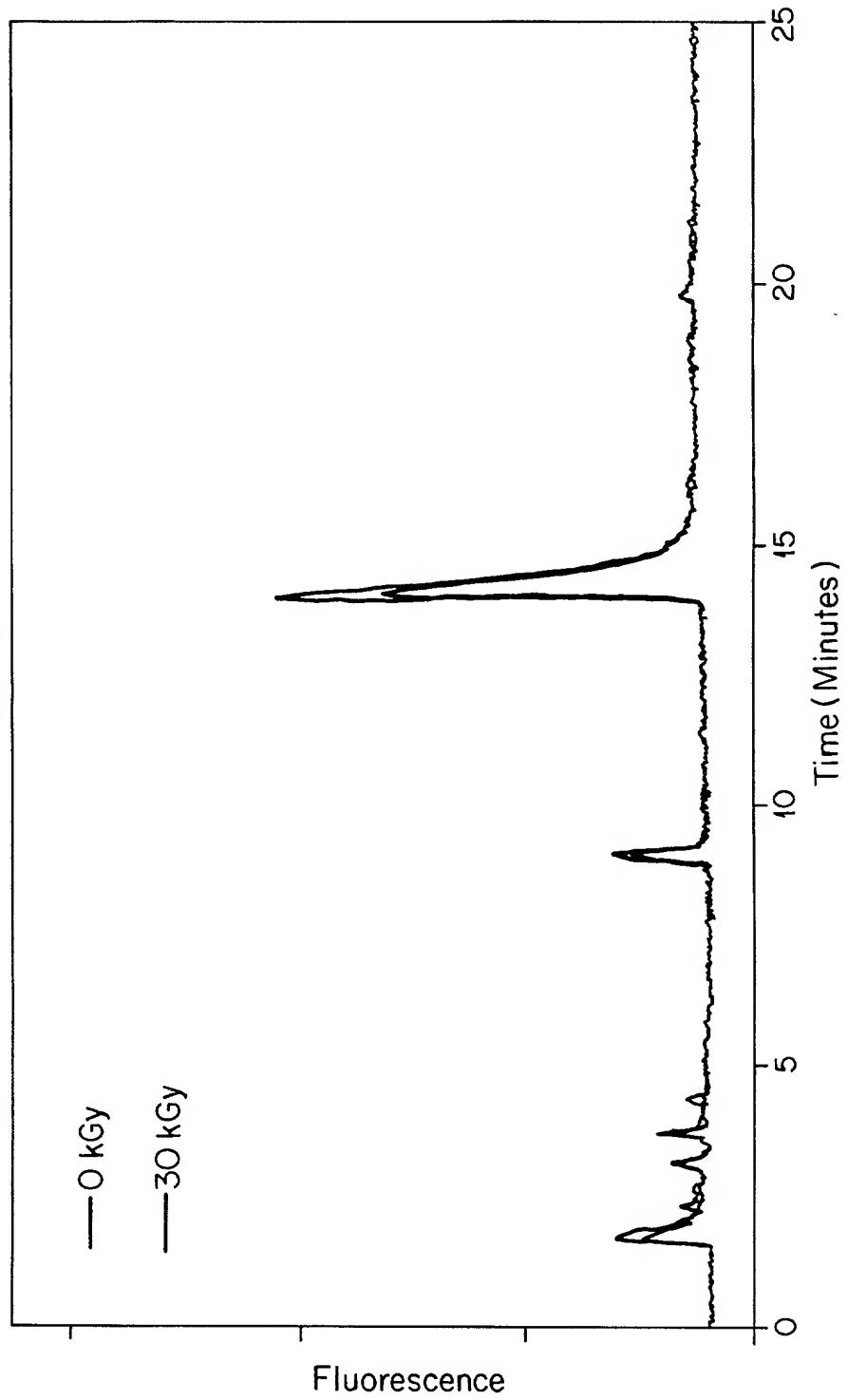


FIG. 3B

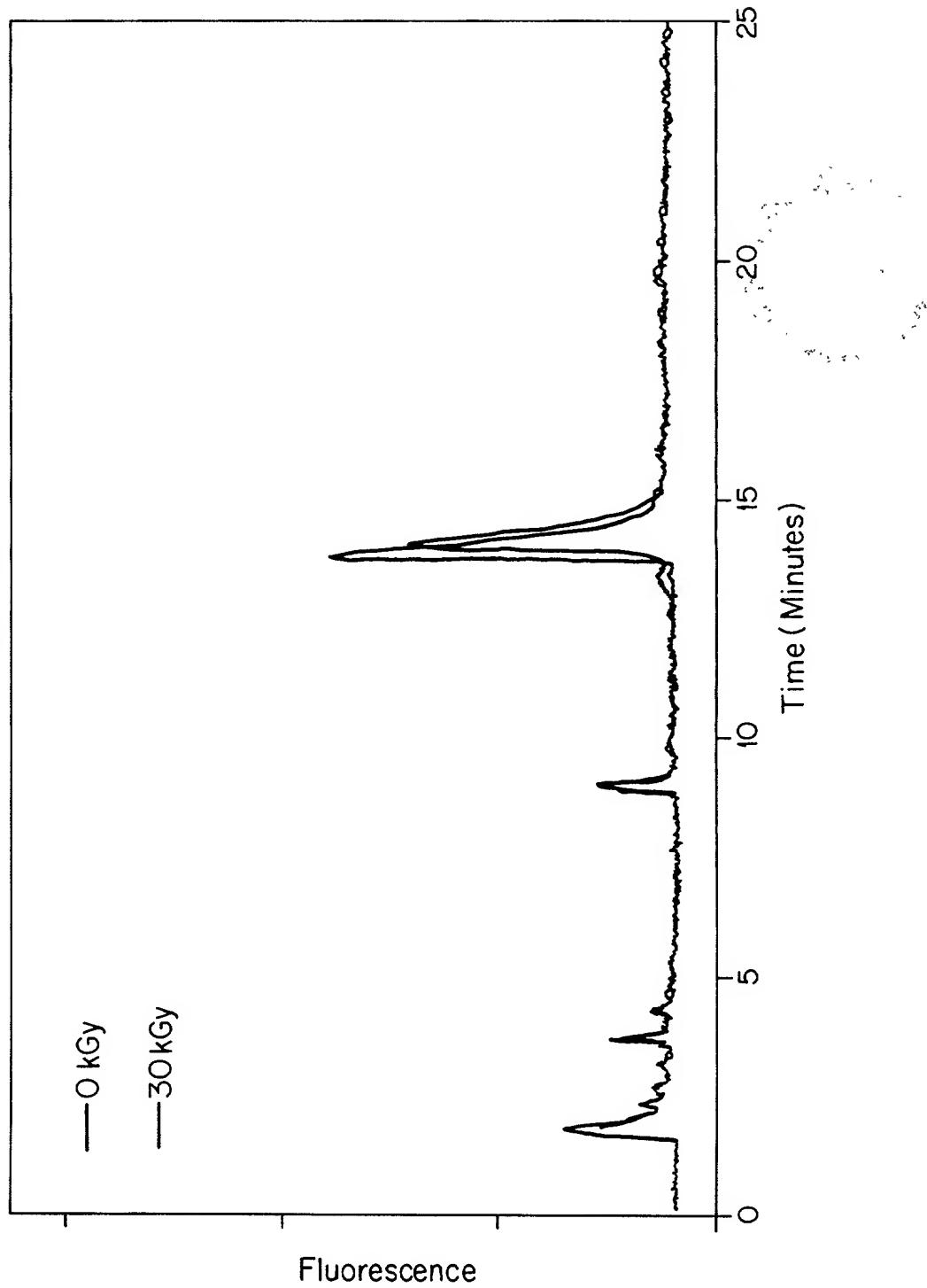


FIG. 3C

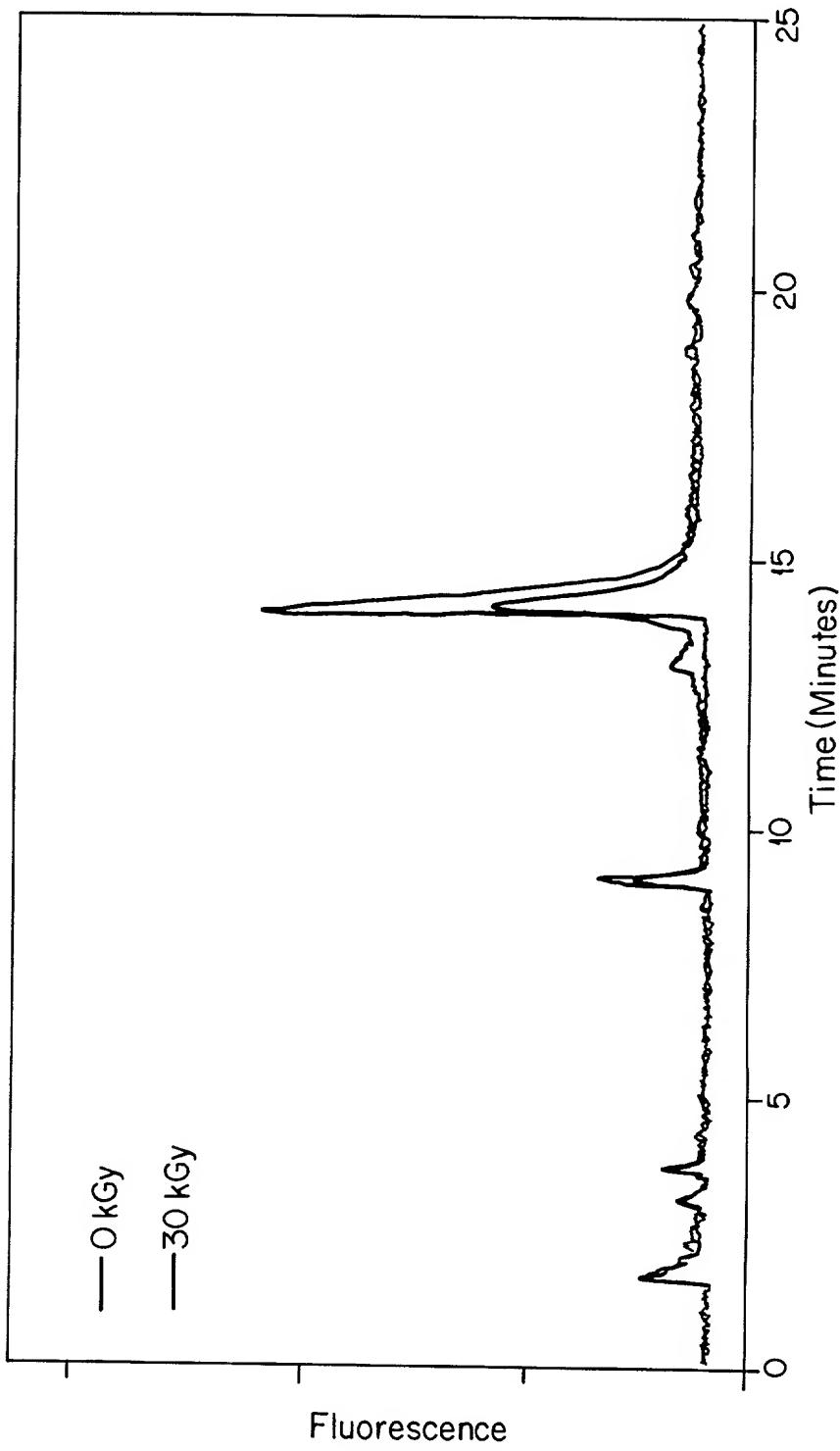


FIG. 3D

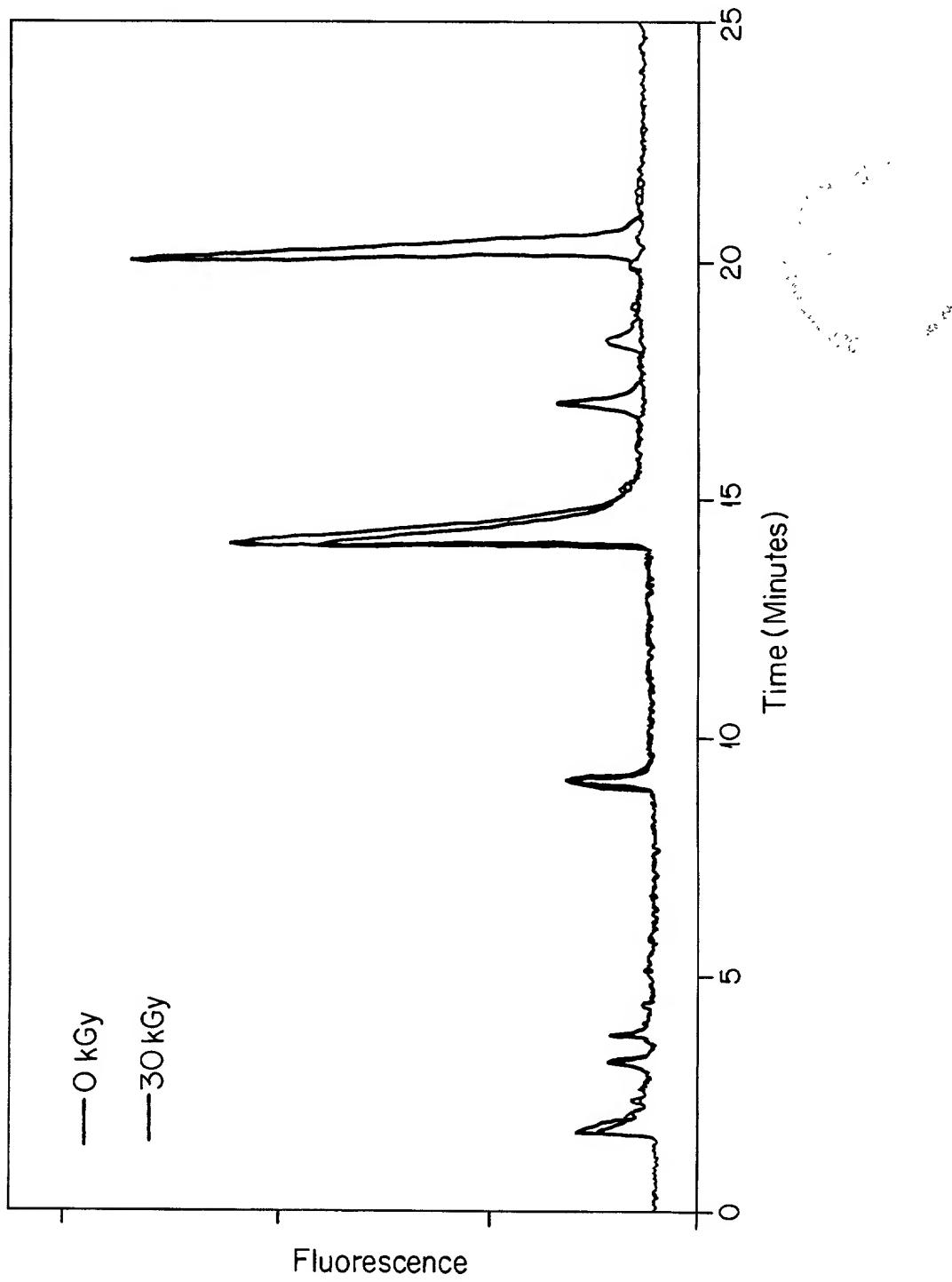


FIG. 3E

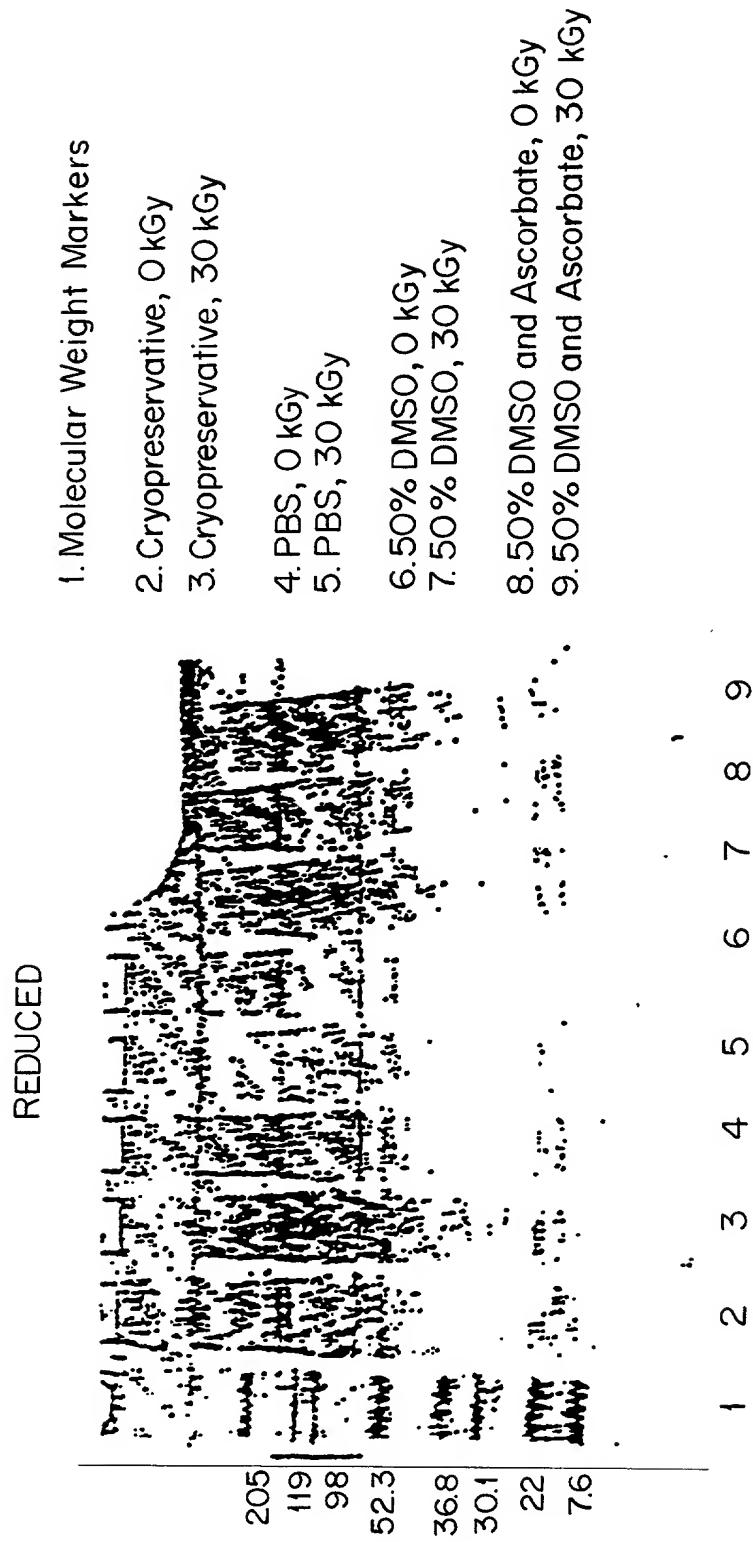


FIG. 4A

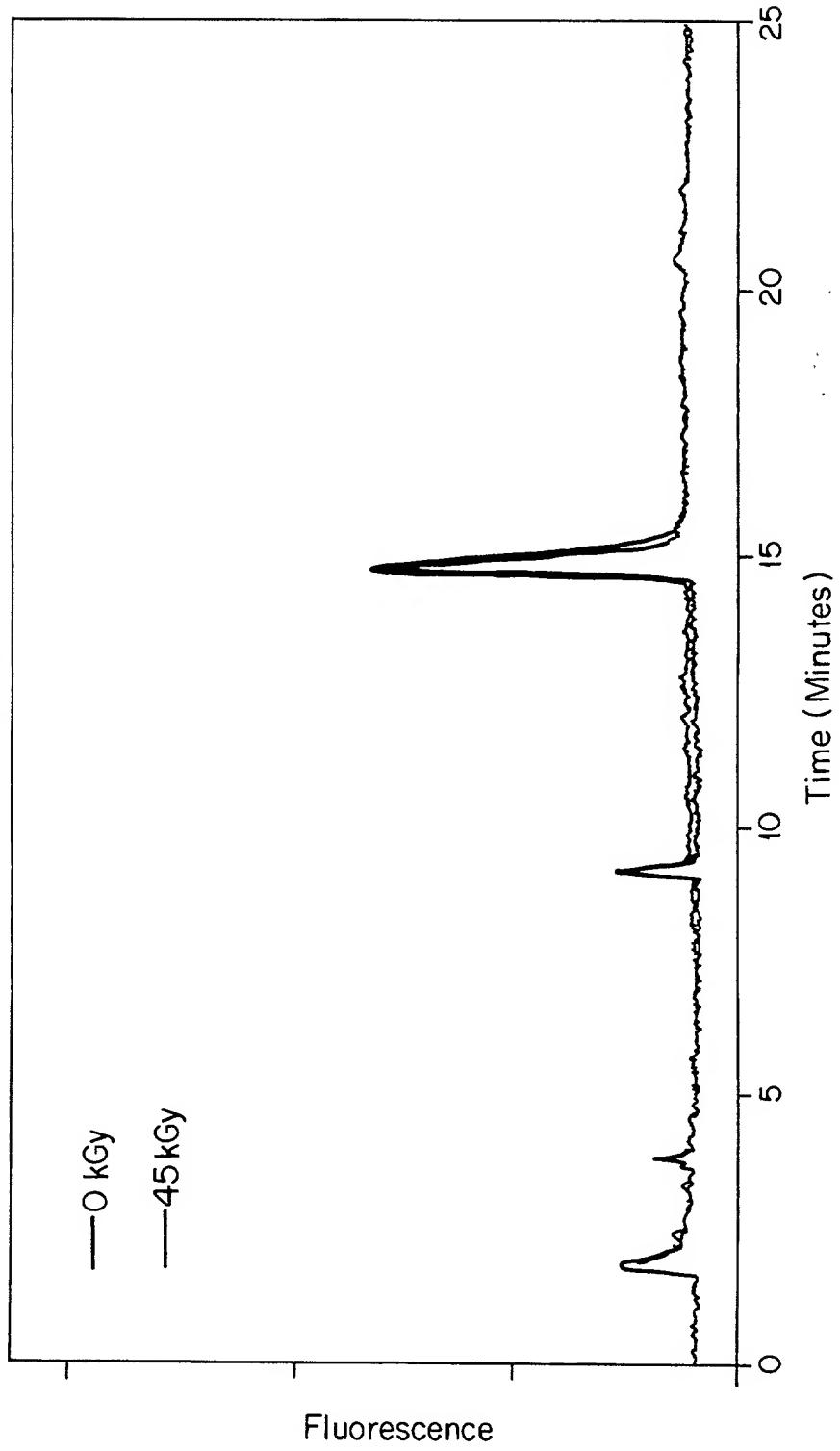


FIG. 4B

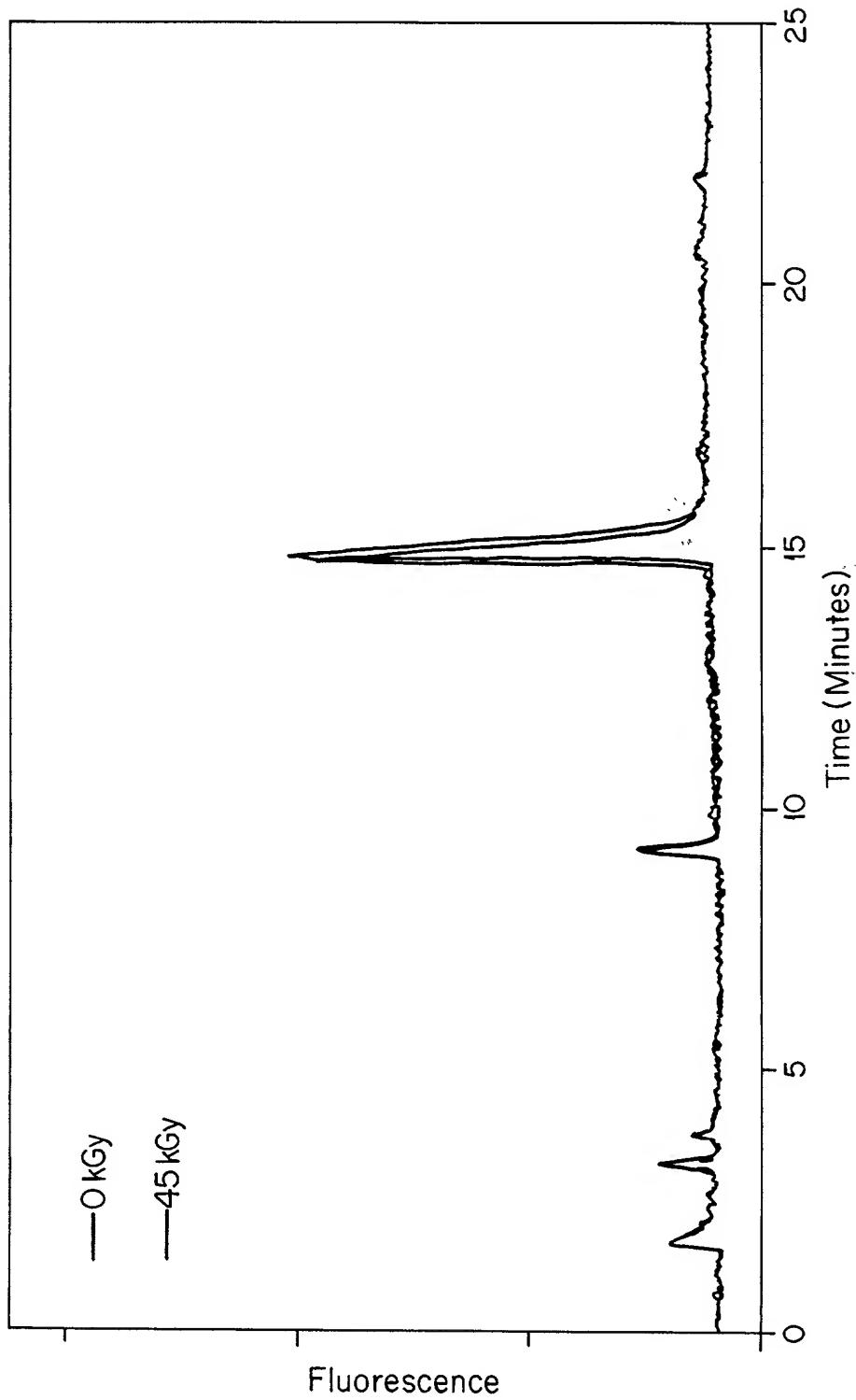


FIG. 4C

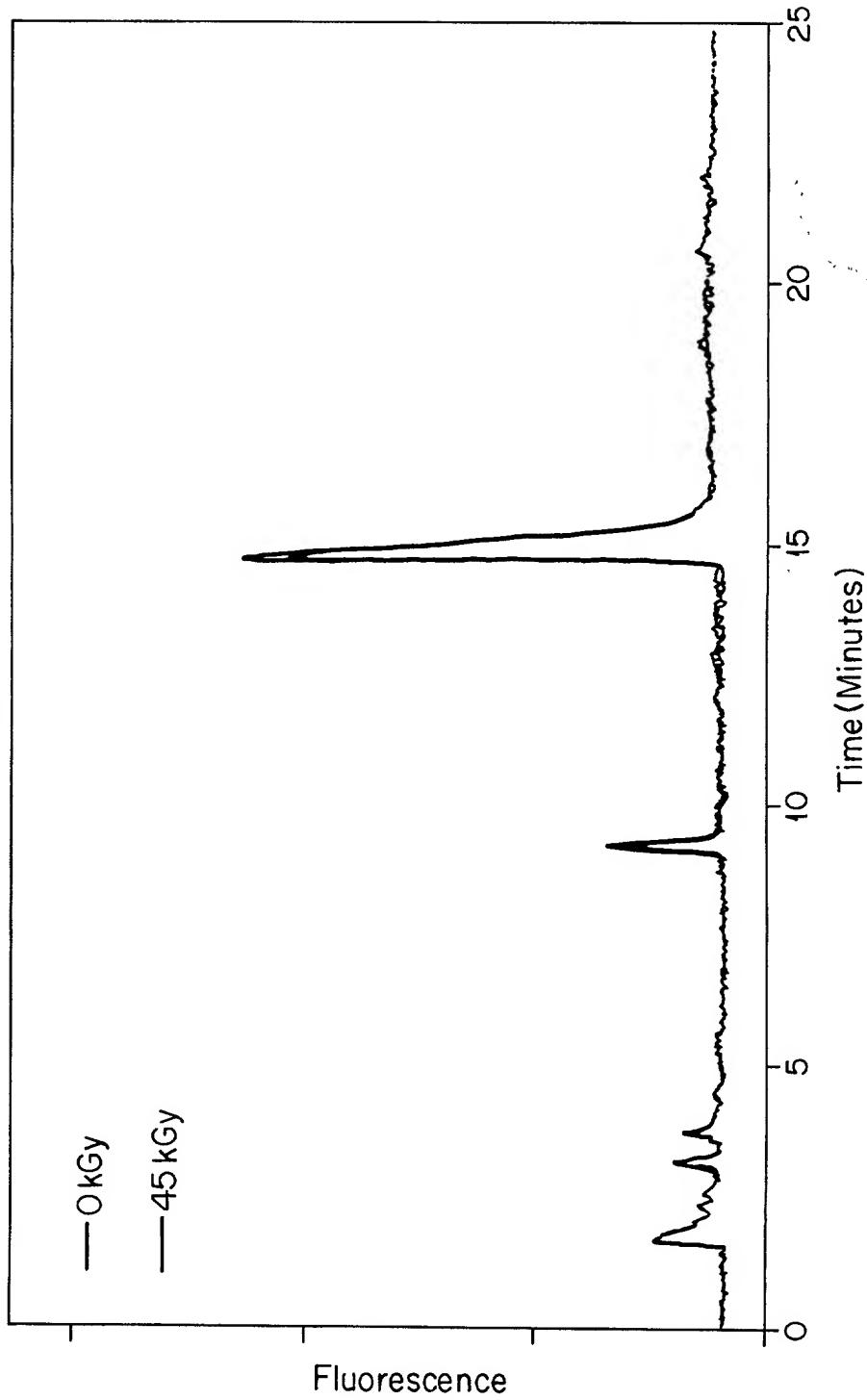


FIG. 4D

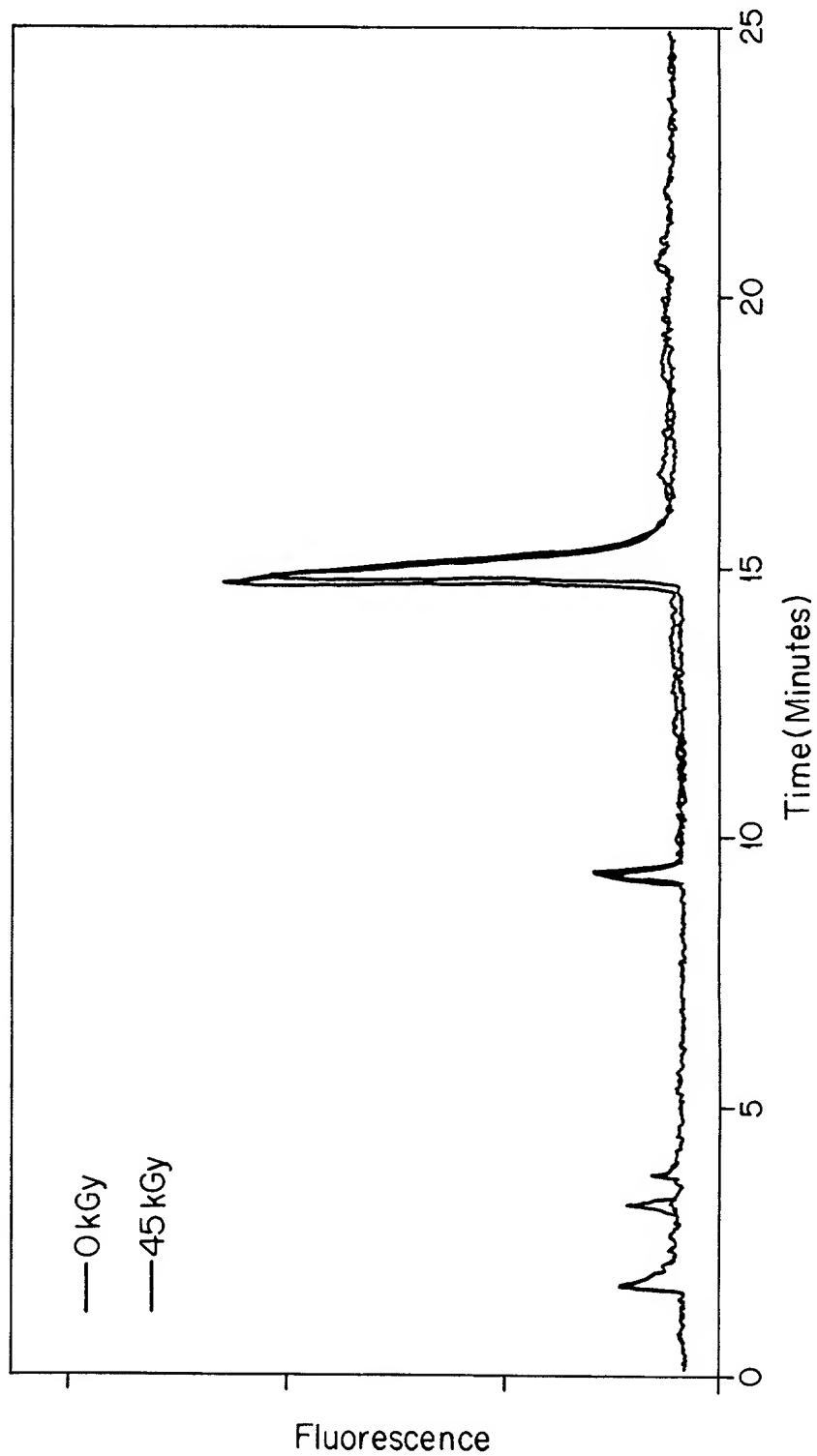


FIG. 4E

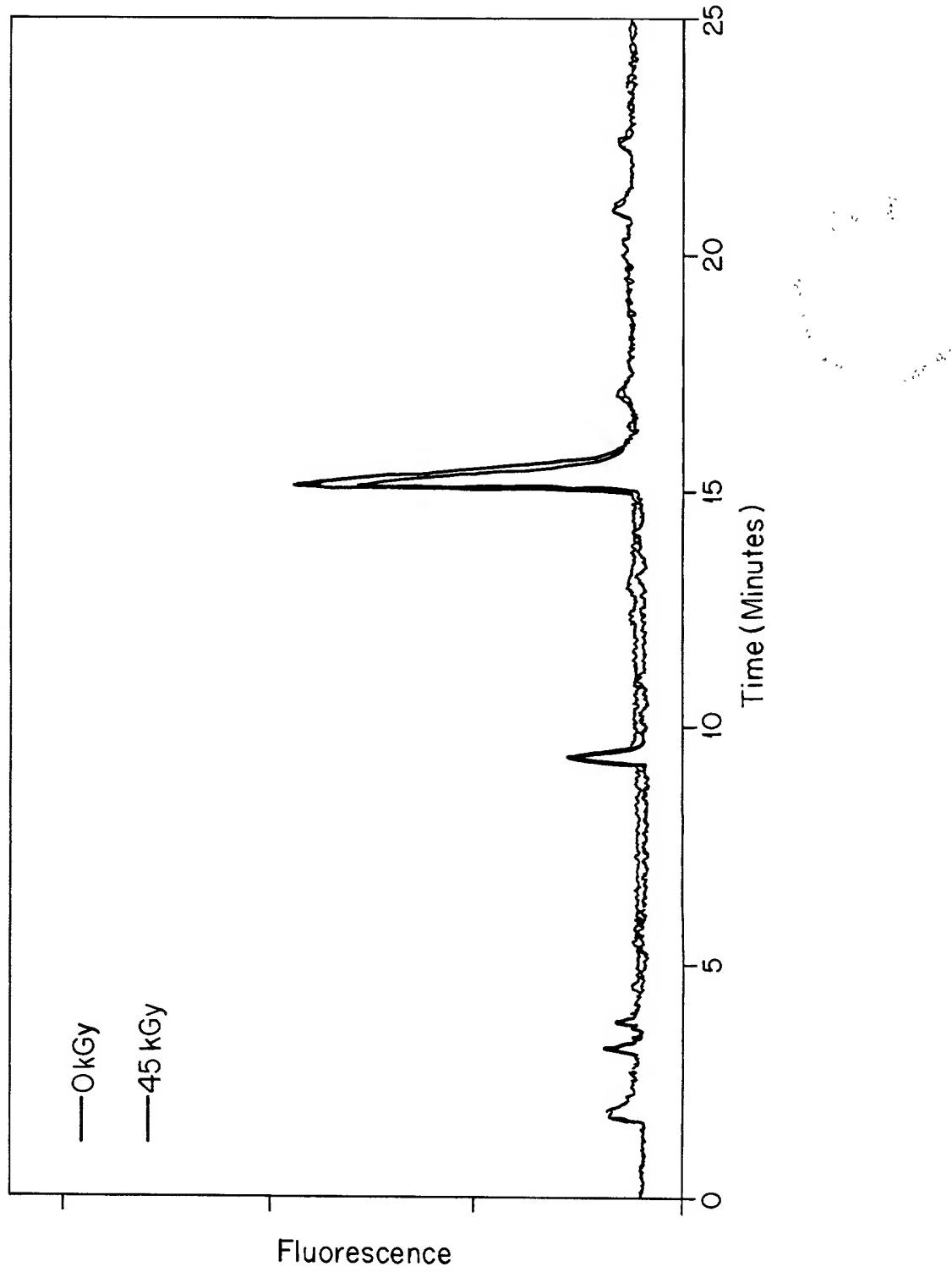


FIG. 4F

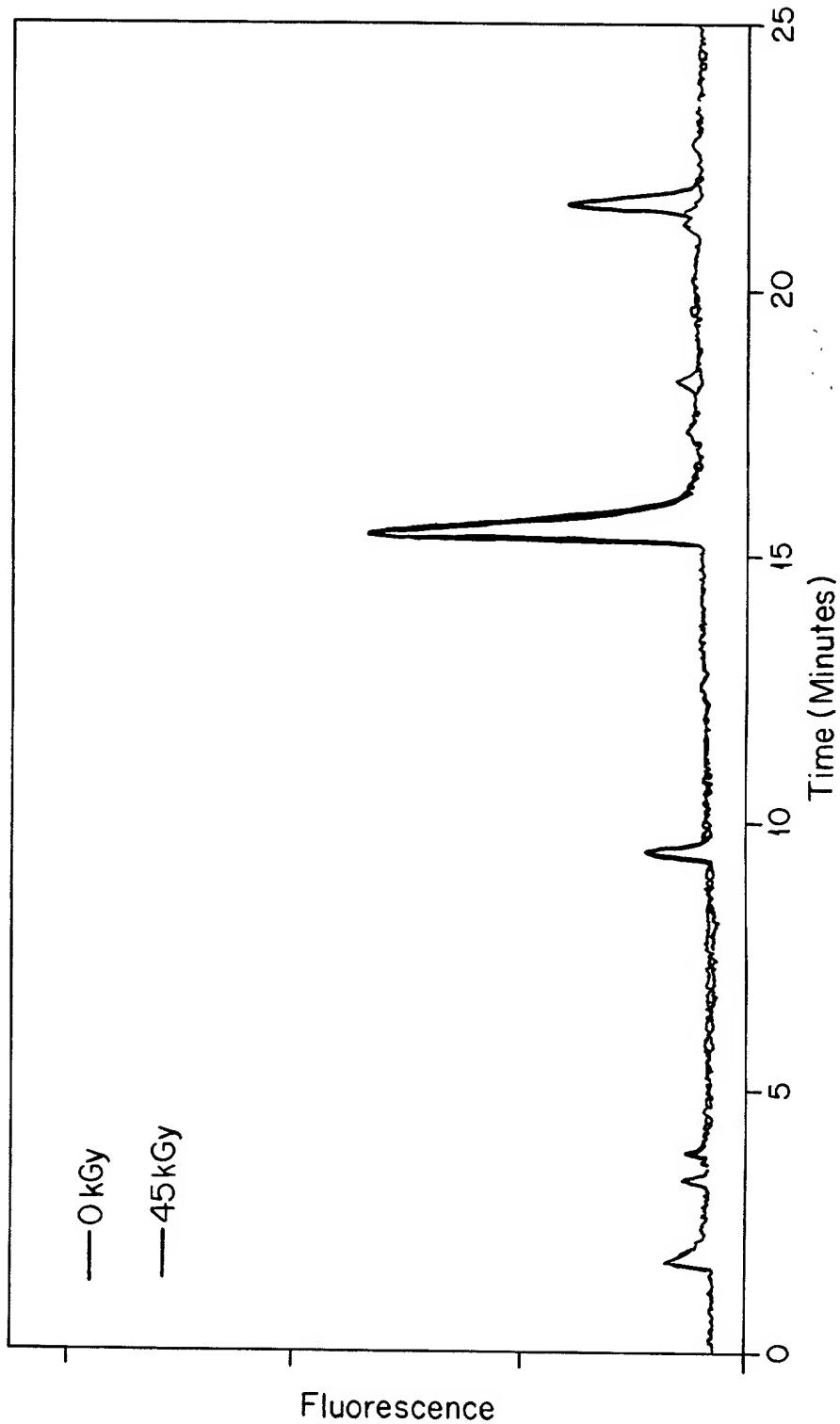


FIG. 4G

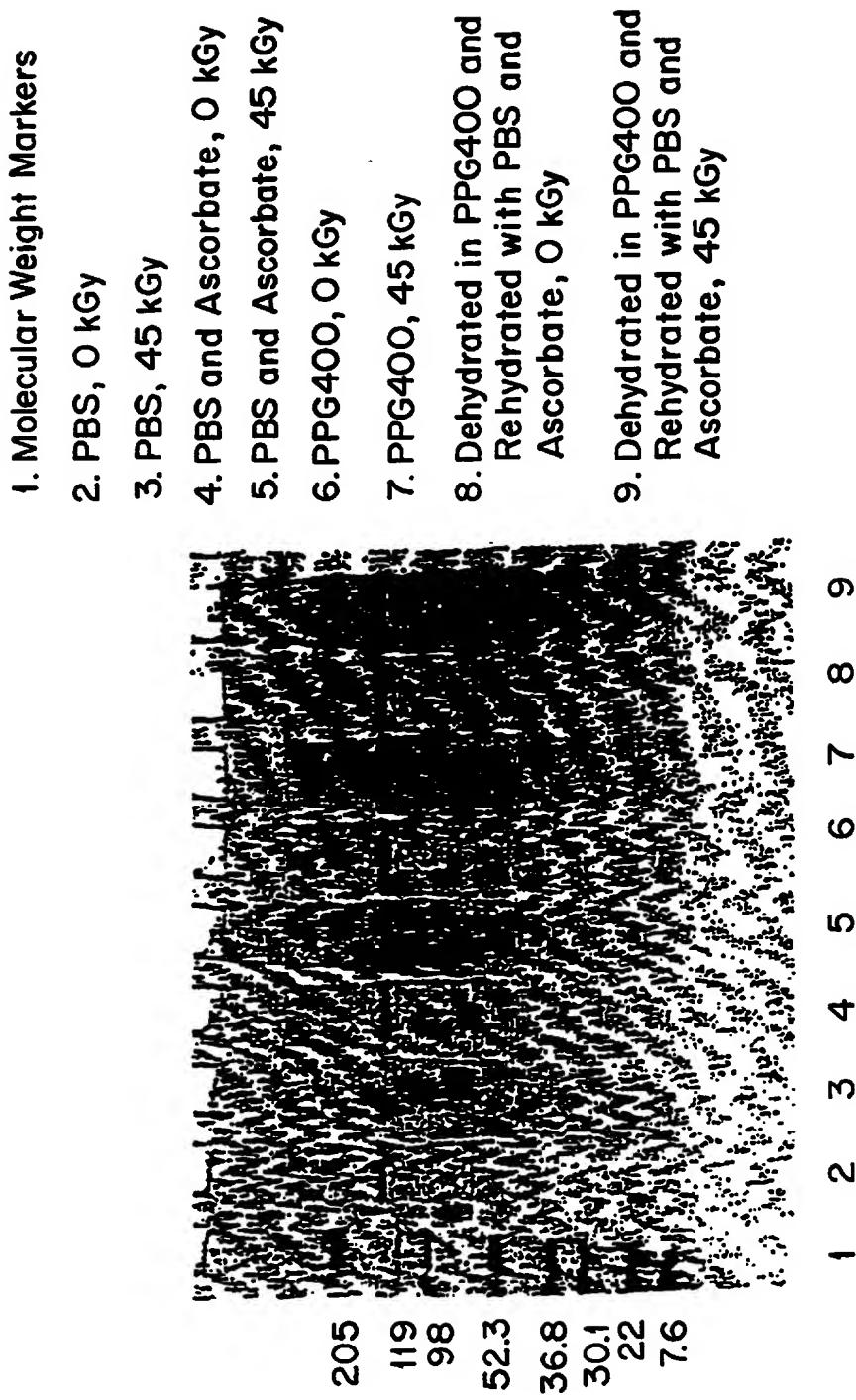


FIG. 4H

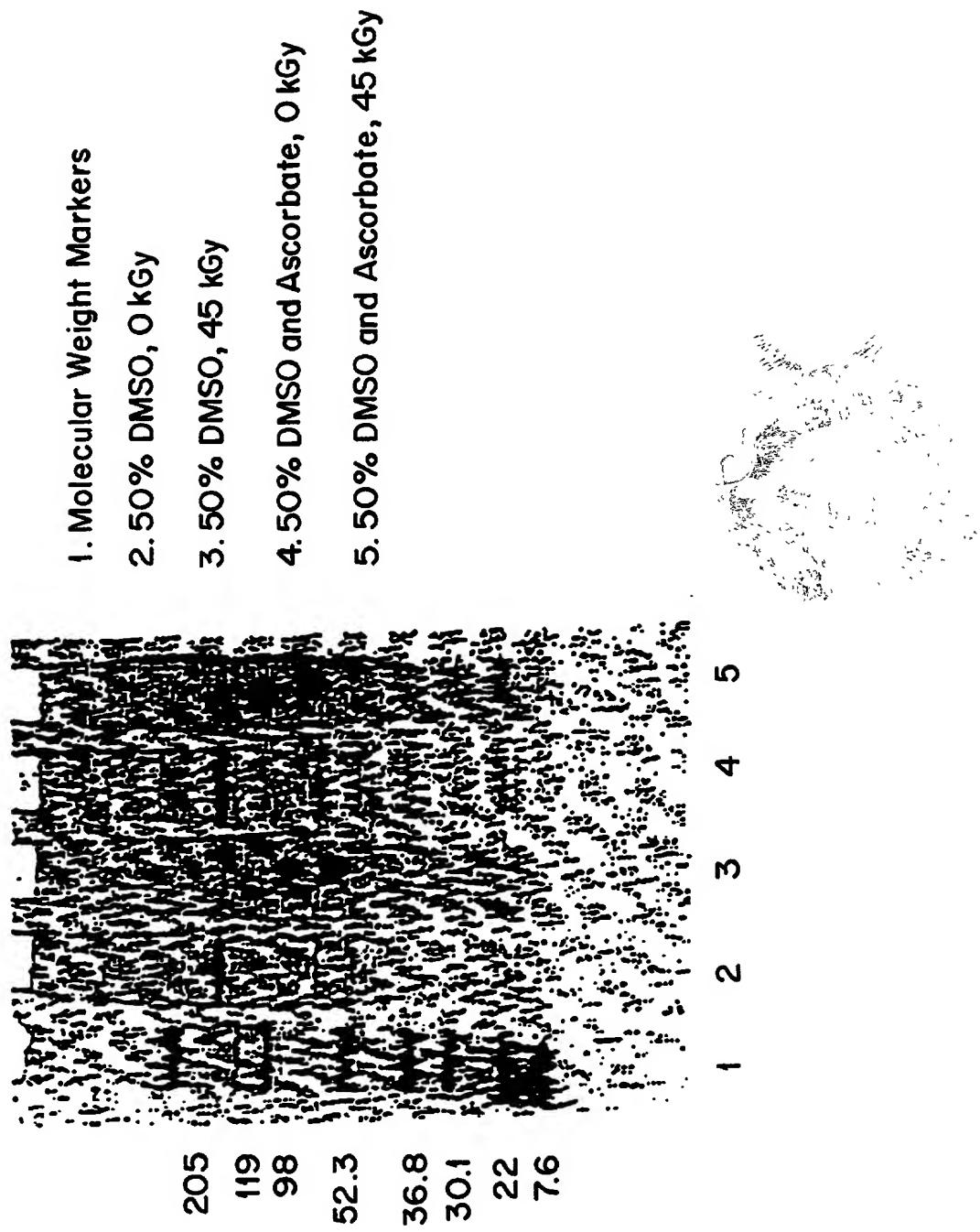
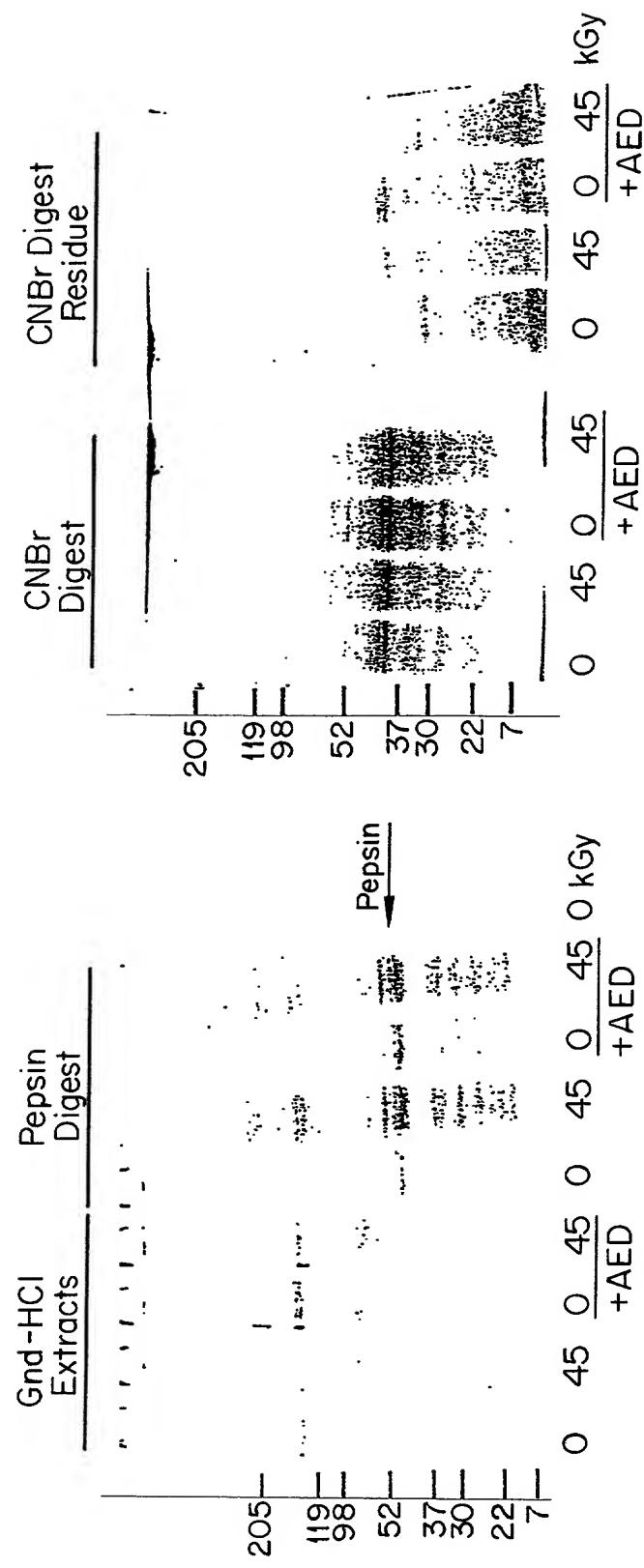


FIG. 5A



AED = 100 mM Ascorbate, 22 mM Ergothioneine, 100 mM Deferoxamine

FIG. 5B

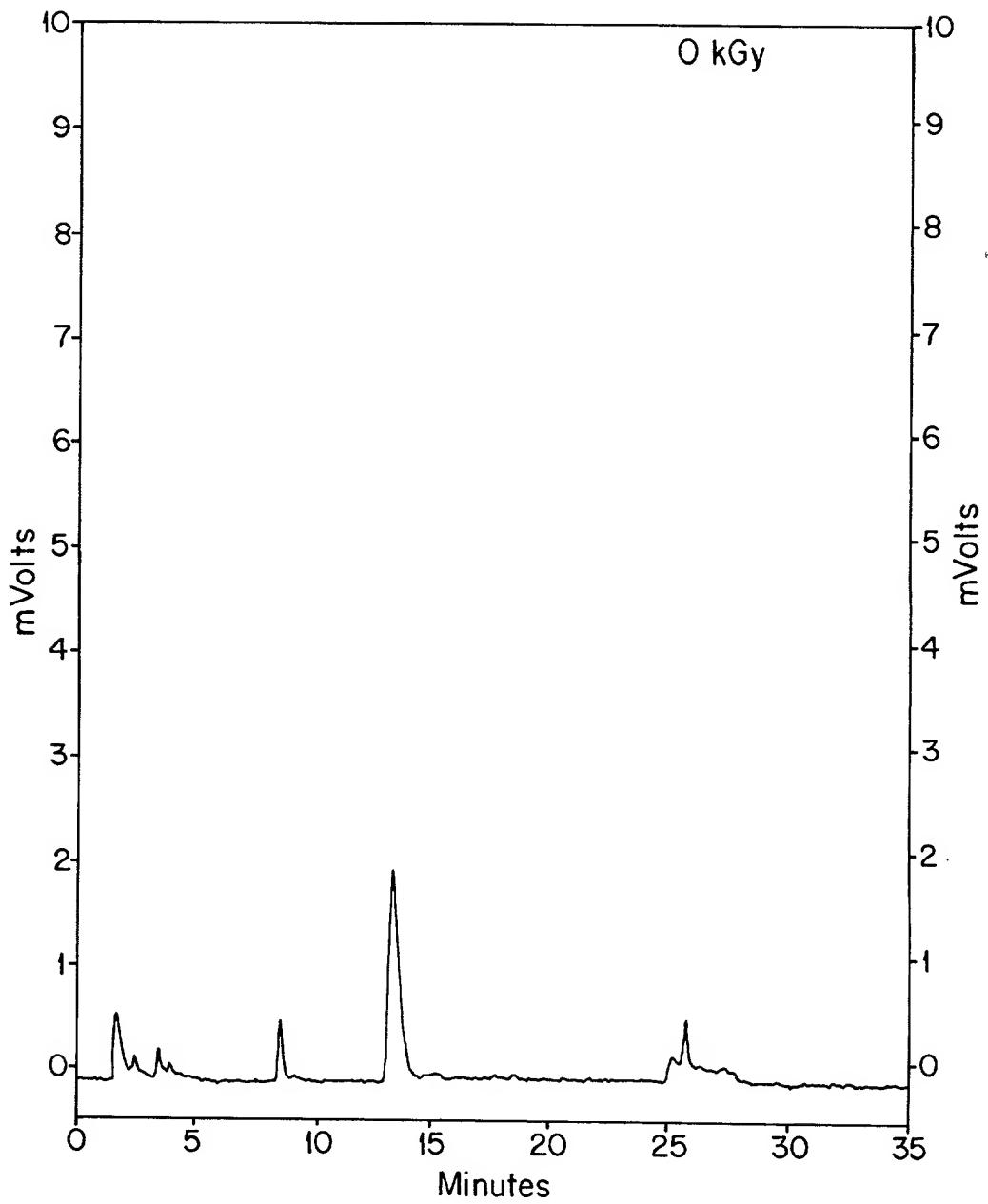


FIG. 5C

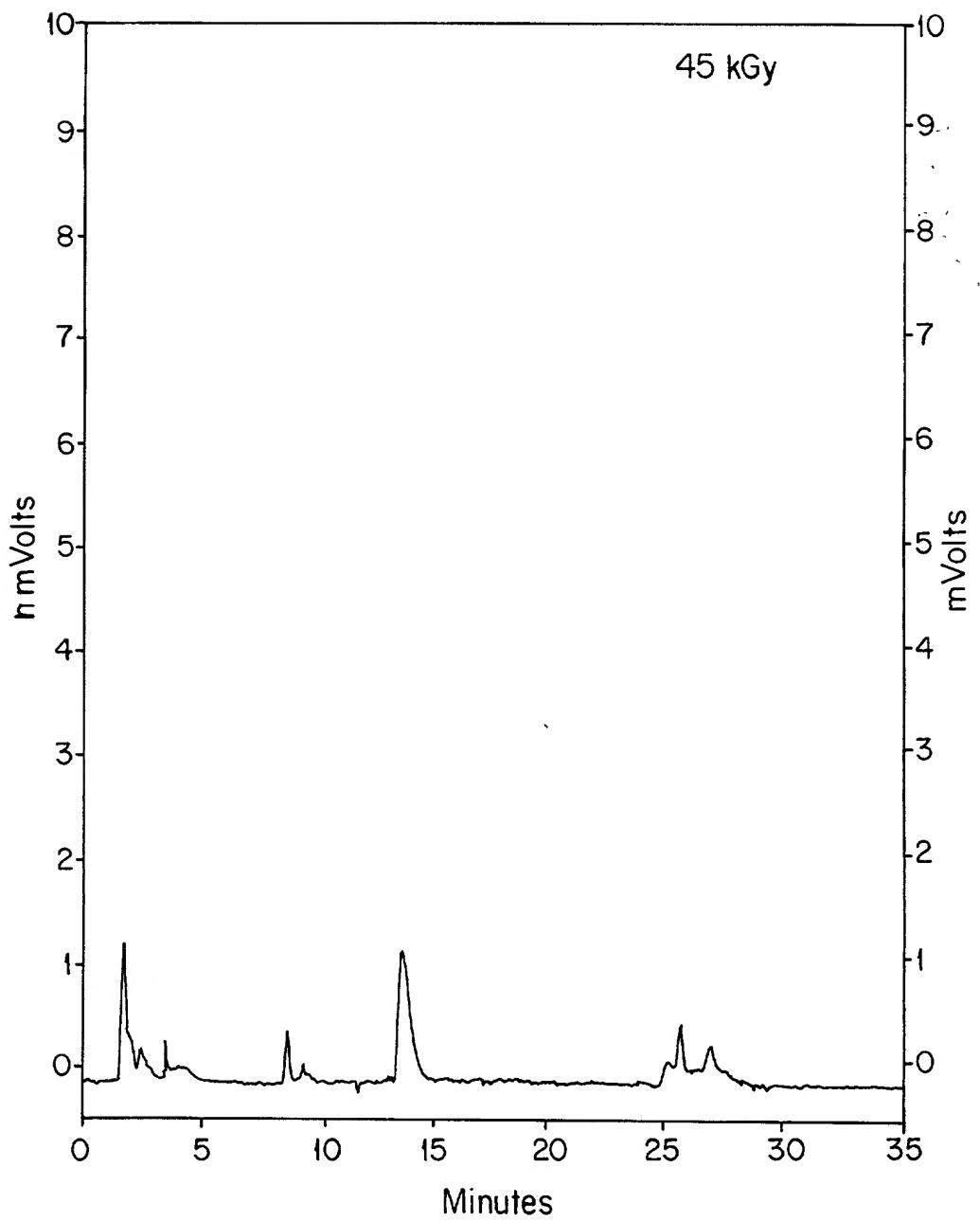


FIG. 5D

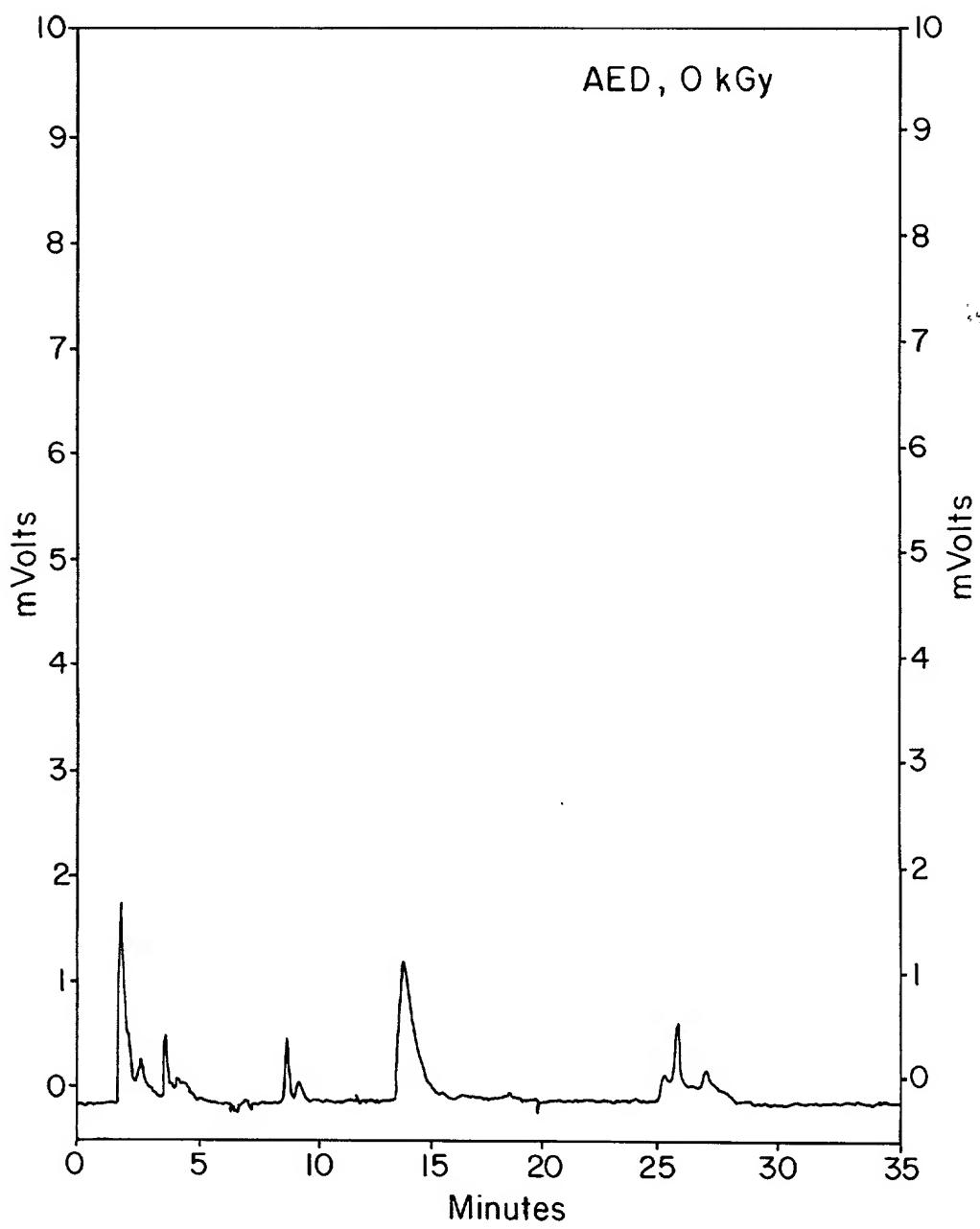


FIG. 5E

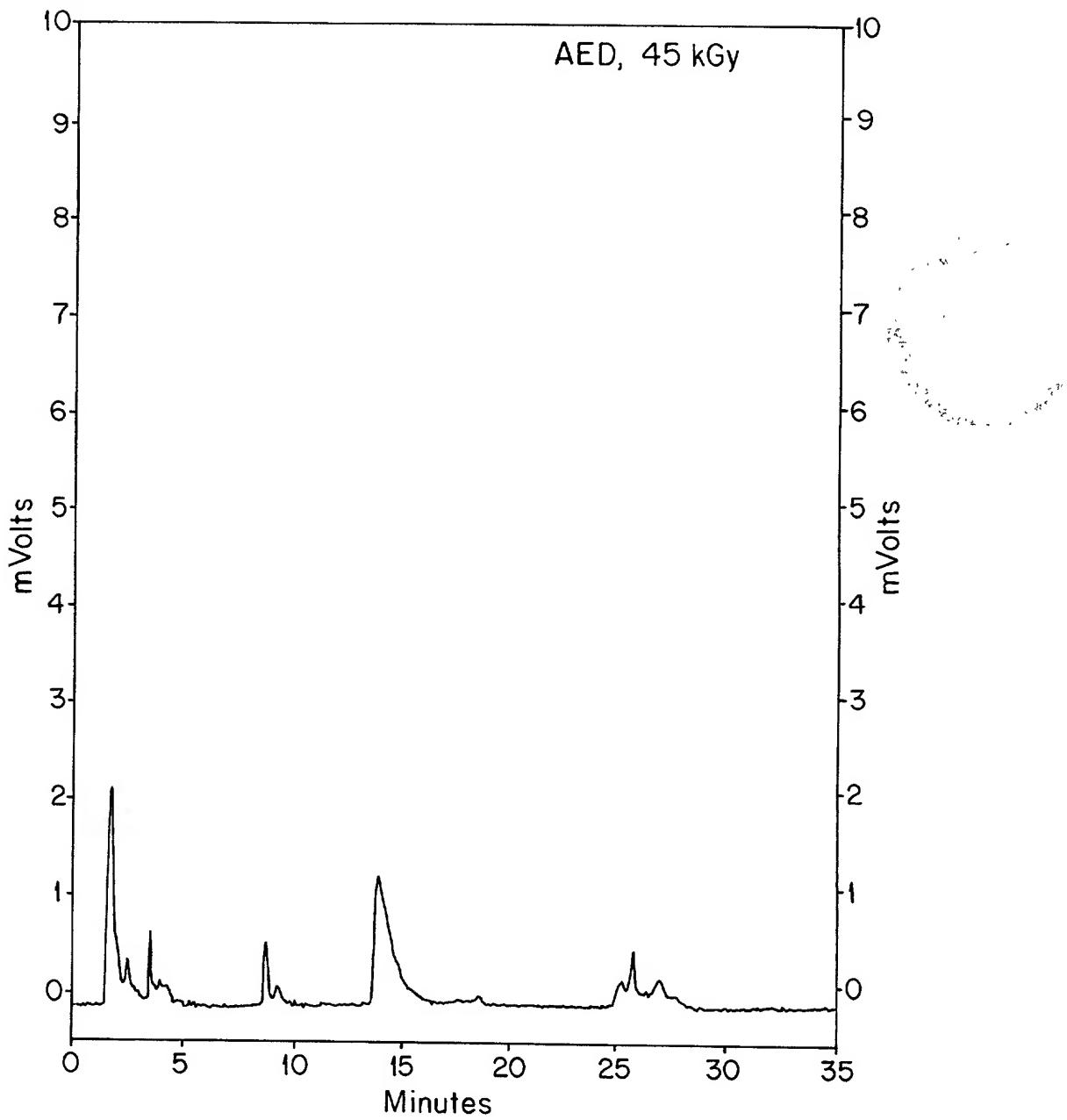


FIG. 6A

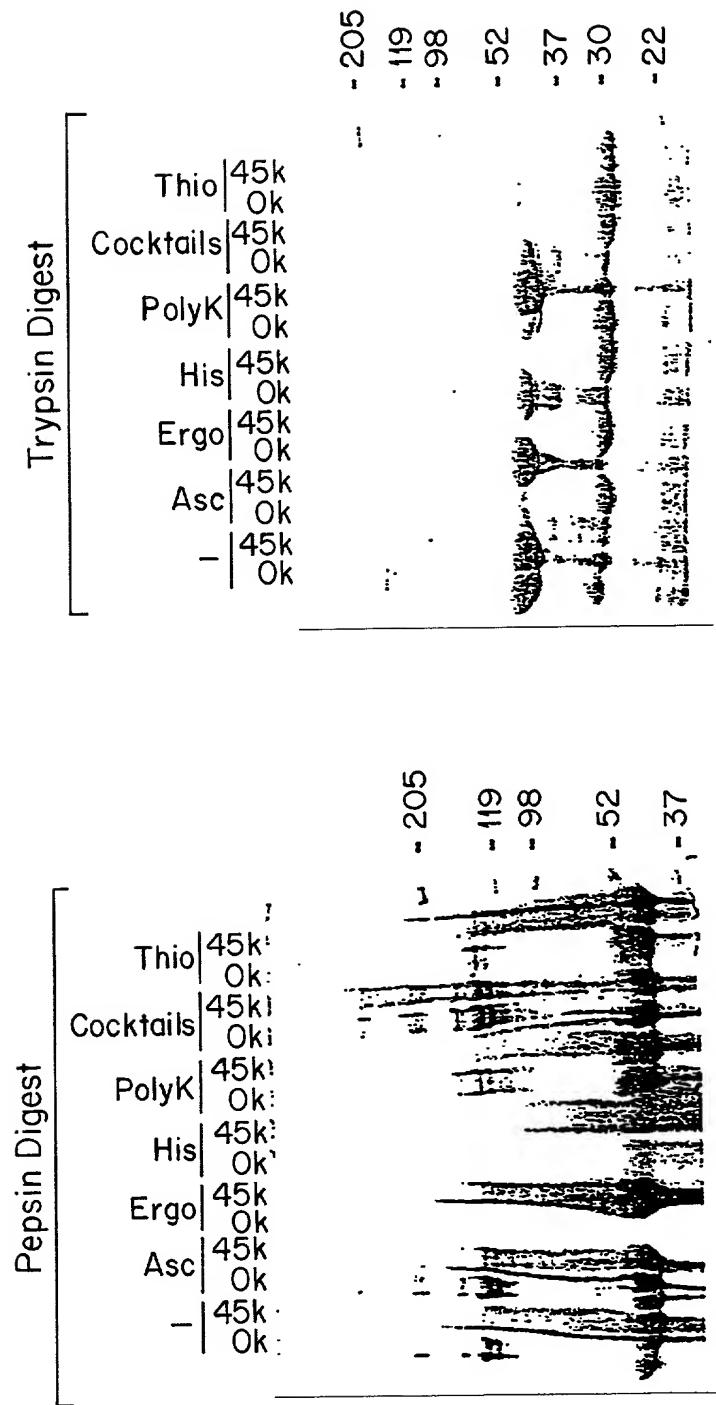
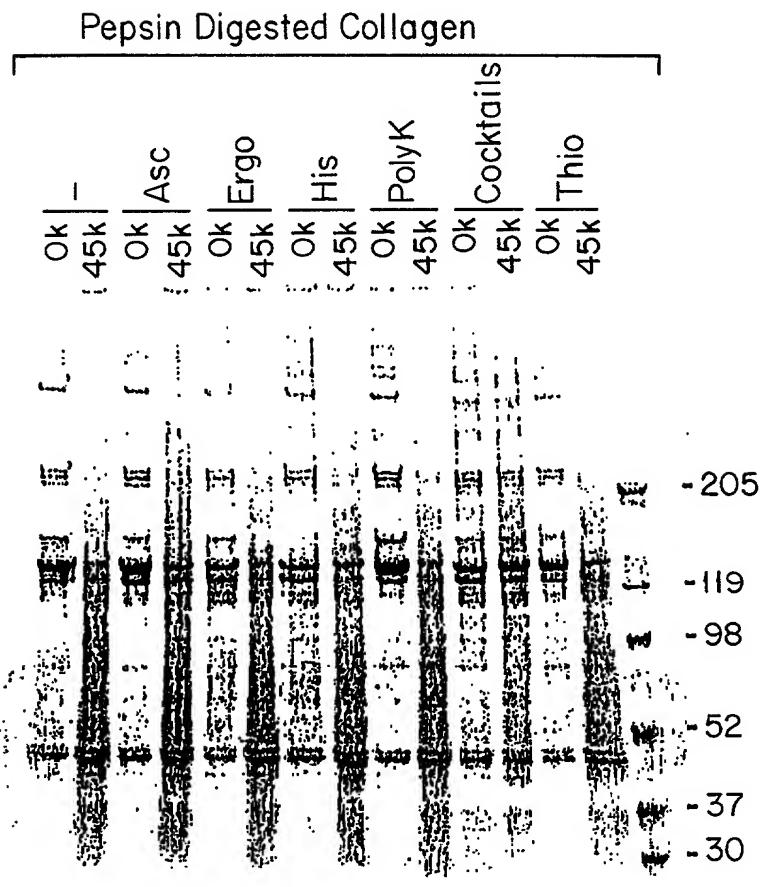


FIG. 6B



Cocktails: PPG/presoak; 100 μ M troloxC, 100mM courmeric acid, 100mM lipoic acid, 100mM n-propyl gallate

FIG. 6C

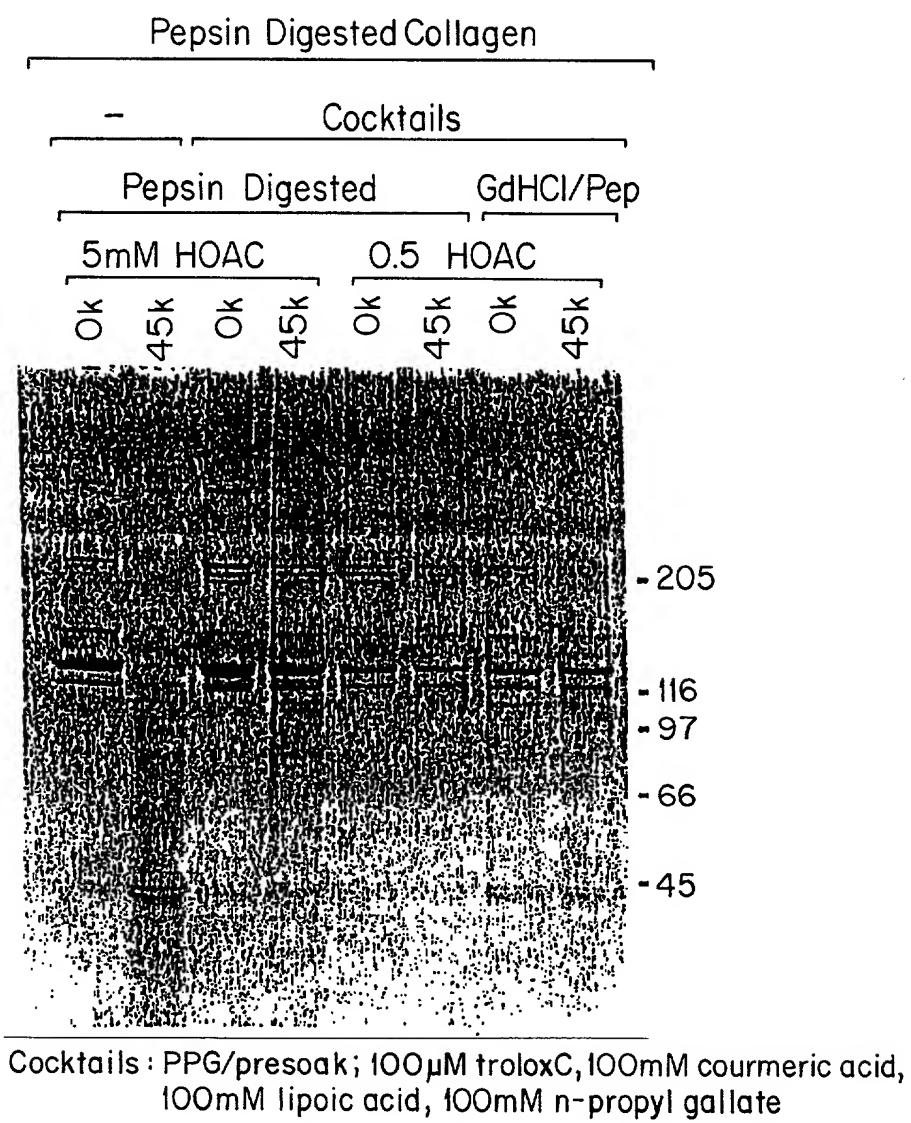


FIG. 6D

Protectants: PPG/presoak;
100 μ M troloxC,
100mM curmeric acid,
100mM lipoic acid, and
100mM n-propyl gallate

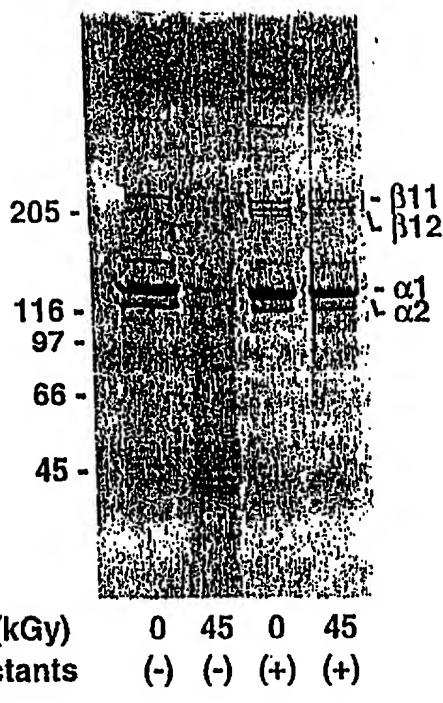
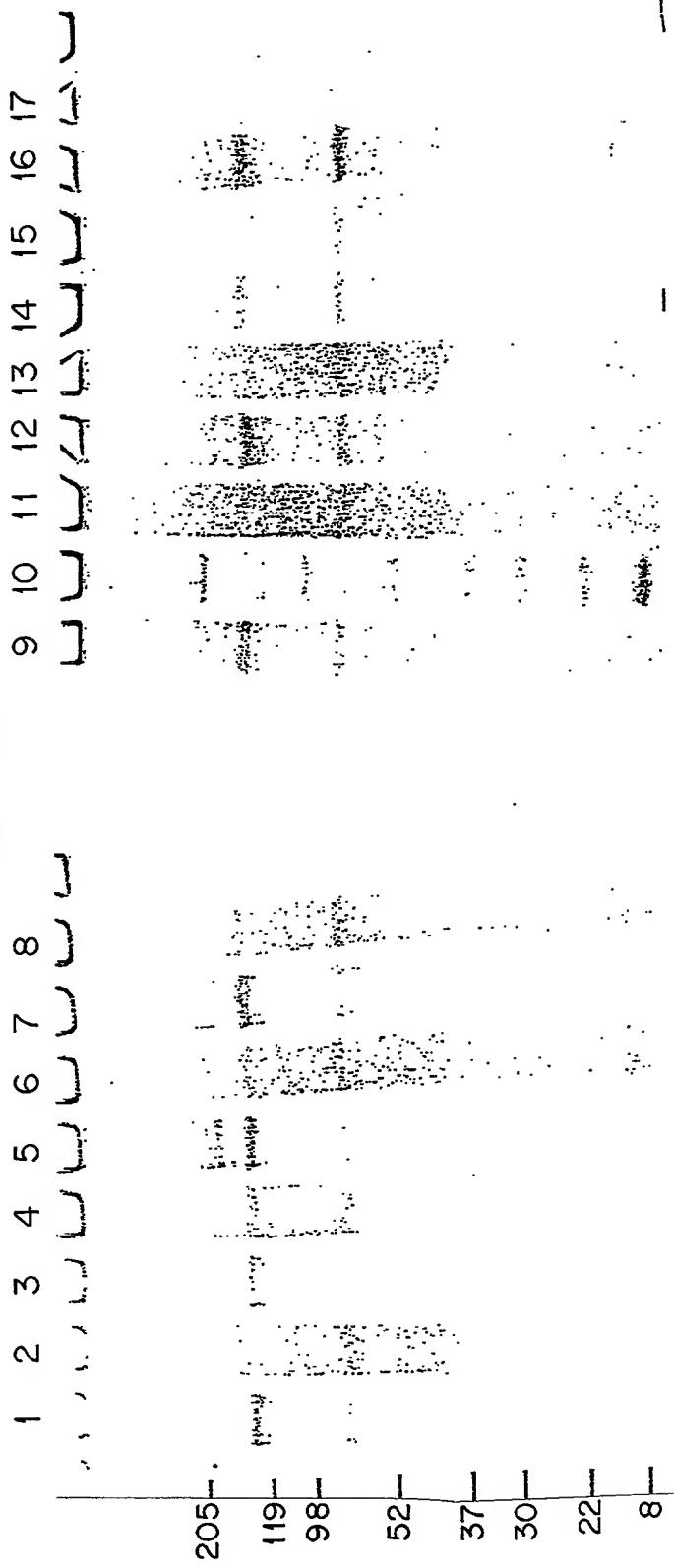


FIG. 6E



1 = 0 kGy
2 = 45 kGy
3 = 200 mM Ascorbate, 0 kGy
4 = 200 mM Ascorbate, 45 kGy
5 = 100 mM Thiourea, 0 kGy
6 = 100 mM Thiourea, 45 kGy
7 = 200 mM Histidine in PBS, 0 kGy
8 = 200 mM Histidine in PBS, 45 kGy
9 = 500 mM Trehalose, 0 kGy
10 = broad range markers
11 = 500 mM Trehalose, 45 kGy
12 = 5 mg/mL Ergothioneine, 0 kGy
13 = 5 mg/ml Ergothioneine, 45 kGy
14 = 10 mM Poly-lysine, 0 kGy
15 = 10 mM Poly-lysine, 45 kGy
16 = PPG, then cocktail (100 μ M trolox, 100 mM curmeric acid, 100 mM lipoic acid, 100 mM propyl gallate), 0 kGy
17 = PPG, then cocktail, 45 kGy

FIG. 6F

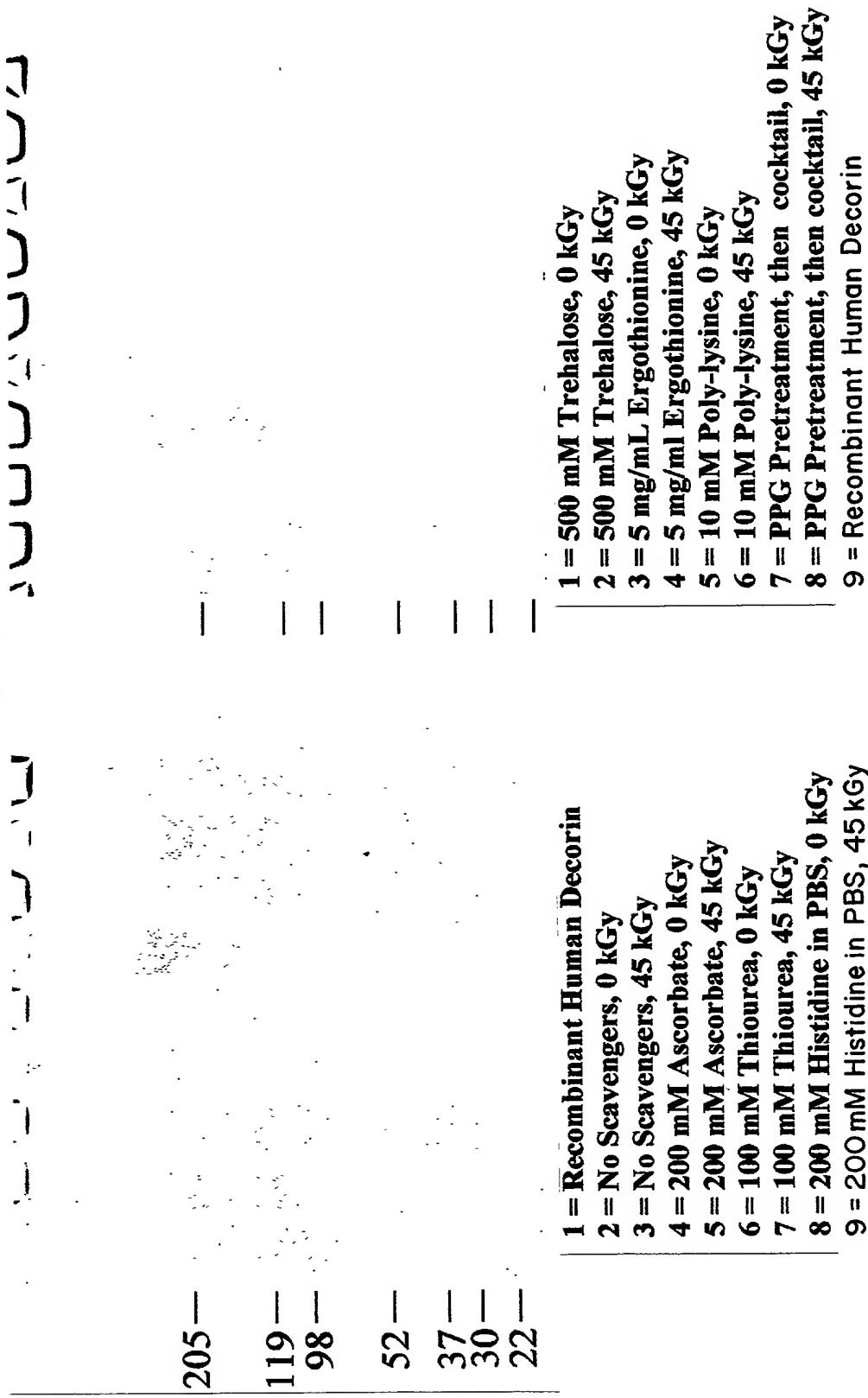
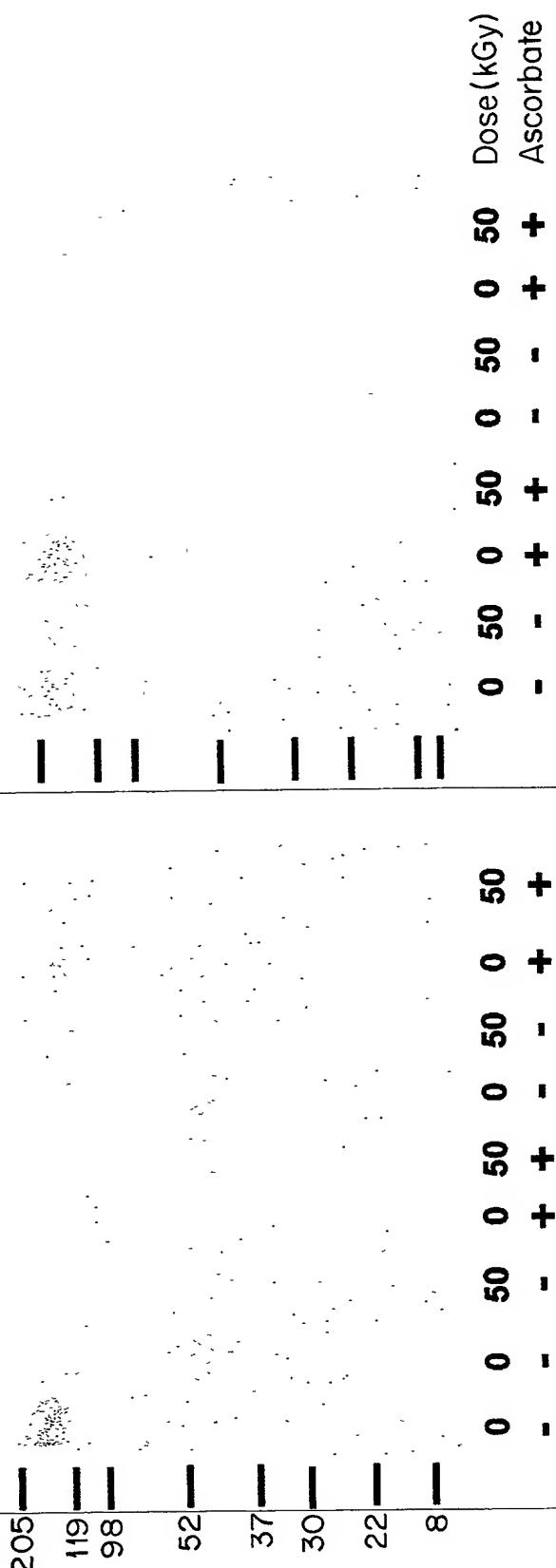


FIG. 7A

Edmonton Cryopreservative

Regulated Quick



Edmonton CP: M199, 10% FCS, 2M DMSO, Pen-Strep
Modified VS55: 100mM trehalose, 15mM KH₂PO₄, 42mM K₂HPO₄, 10mM NaHCO₃, 150mM mannitol, 24.2% DMSO, 16.8% 1,2-propanediol, 14% formamide

FC: fresh ACL control

Quick Freeze: dry-ice ethanol bath

Regulated Freeze: decrease in temp. of 1°C/min to -56-59°C, then placed in -80°C

FIG. 7B

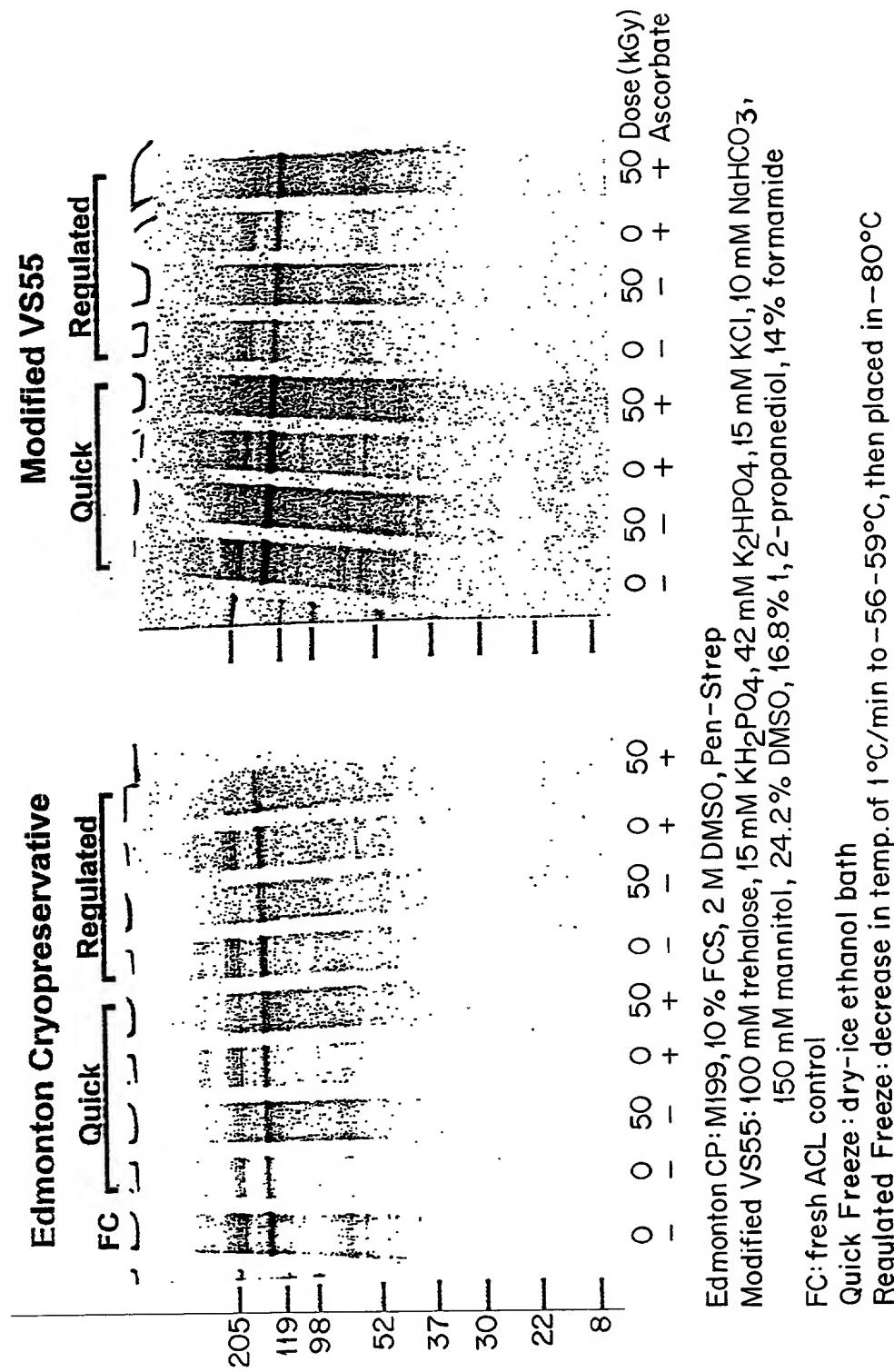
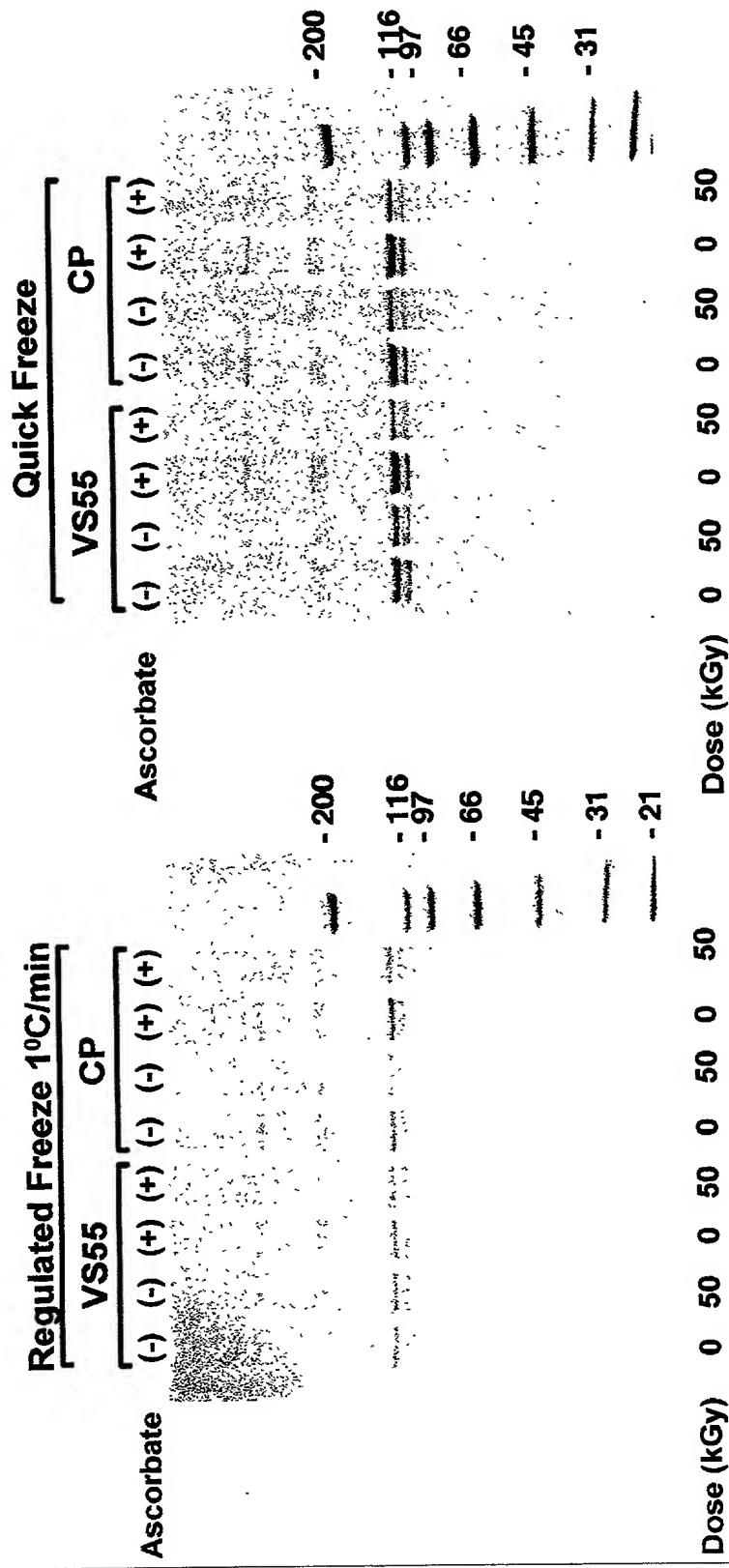


FIG. 7C



VS55: 100mM trehalose, 15mM KH₂PO₄, 42mM K₂HPO₄, 10mM NaHCO₃, 150mM mannitol, 24.2% DMSO, 16.8% 1, 2-propanediol, and 14% formamide

CP: 10% FCS, Penicillin-streptomycin, M199, and 2M DMSO

8
FIG.

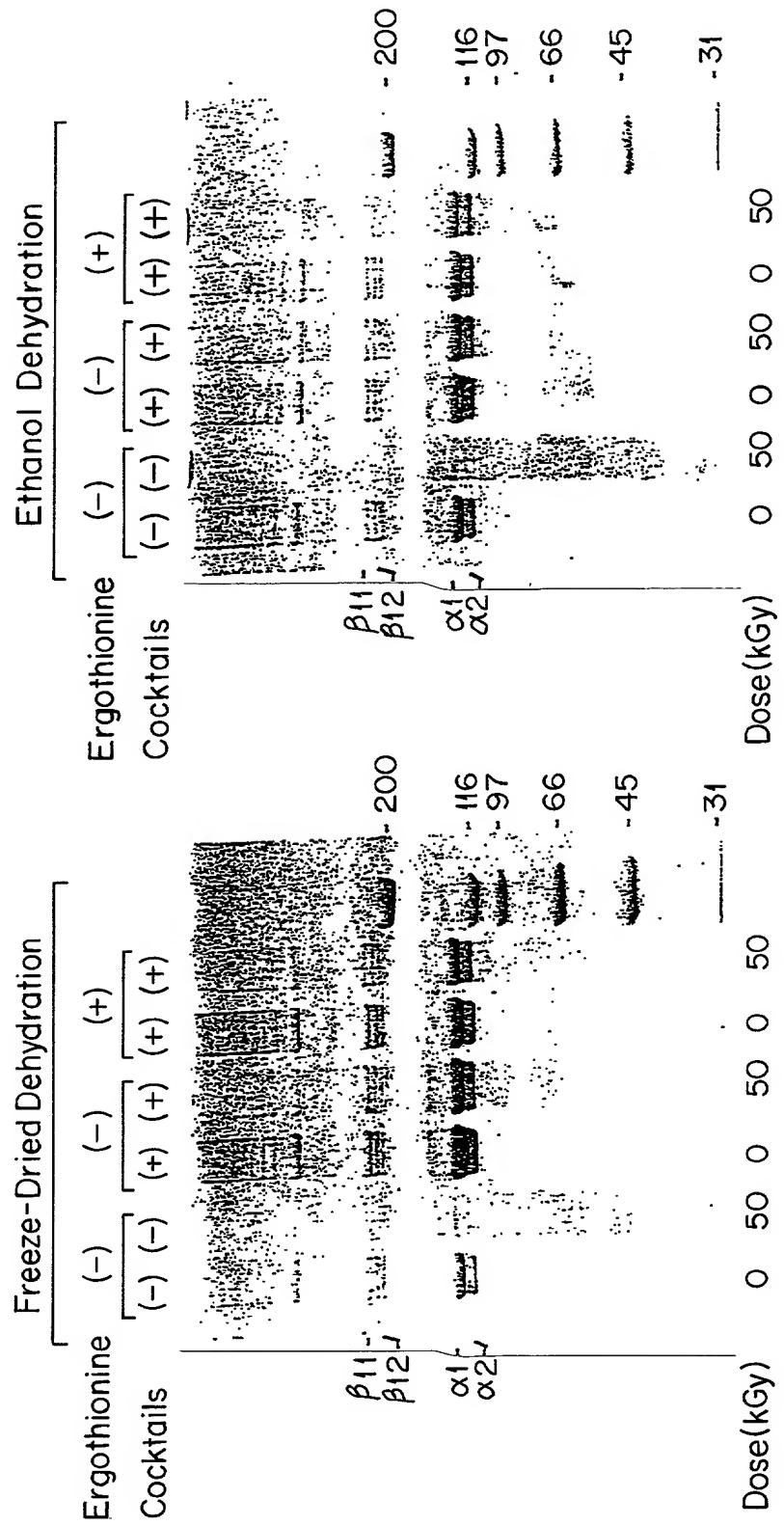


FIG. 9A

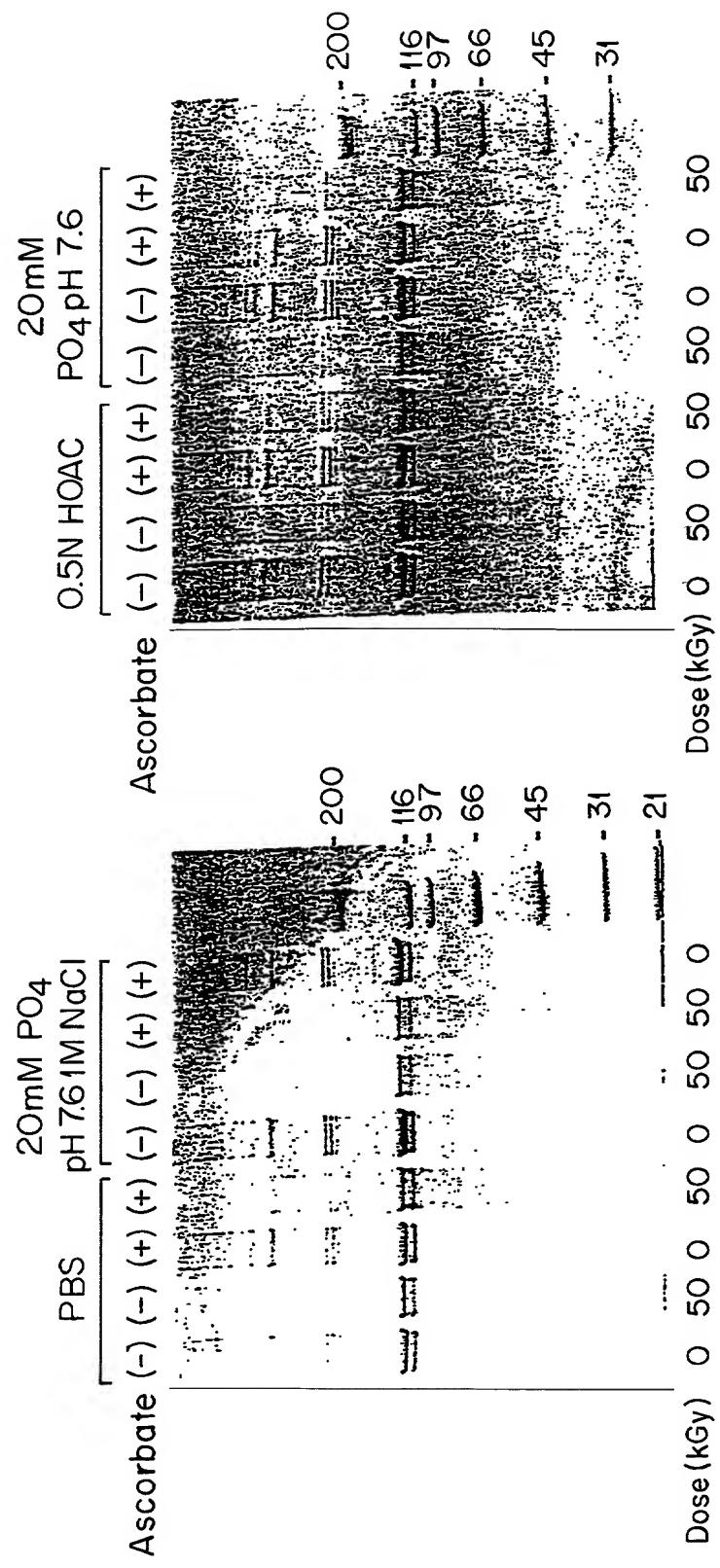


FIG. 9B

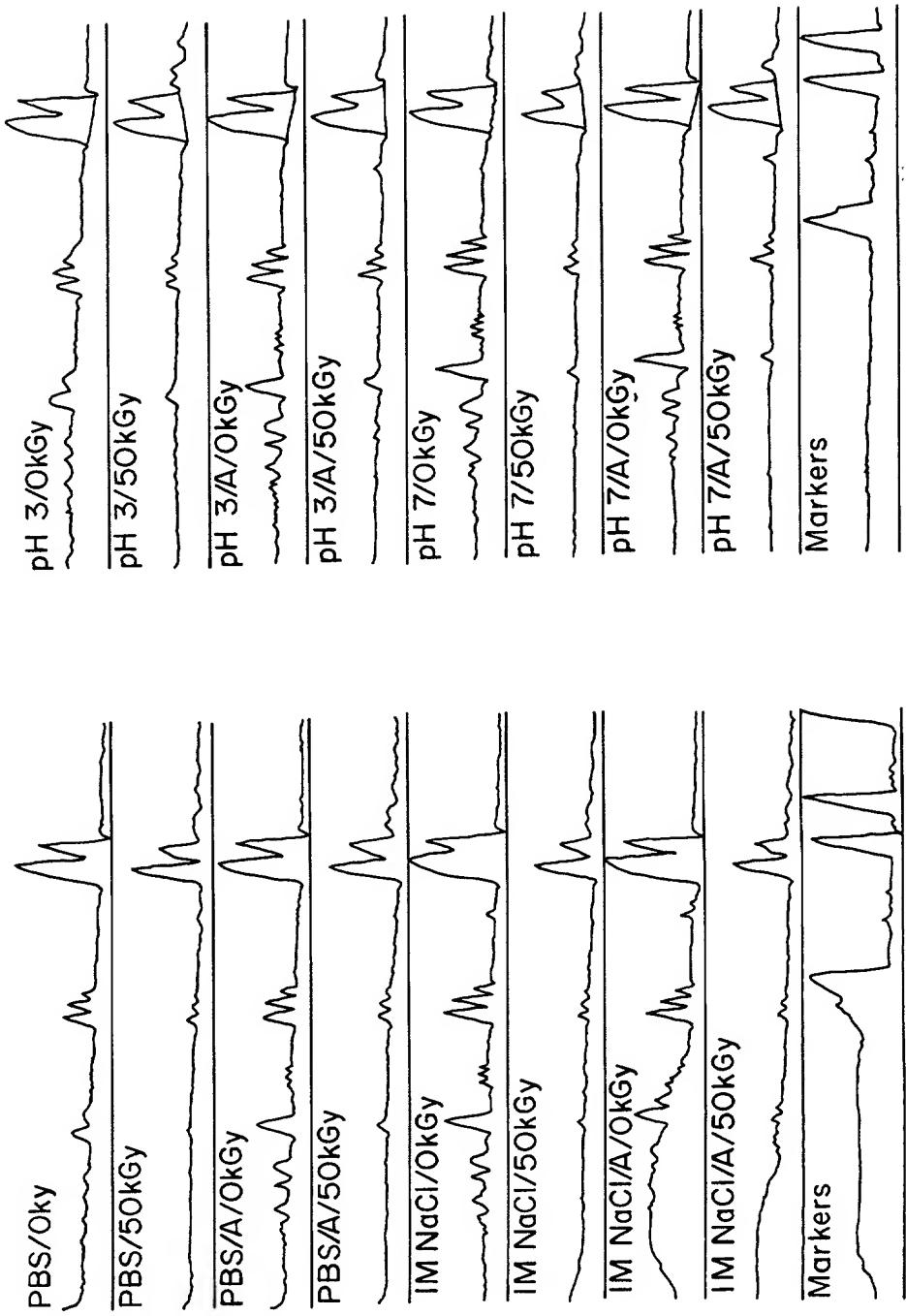


FIG. 10

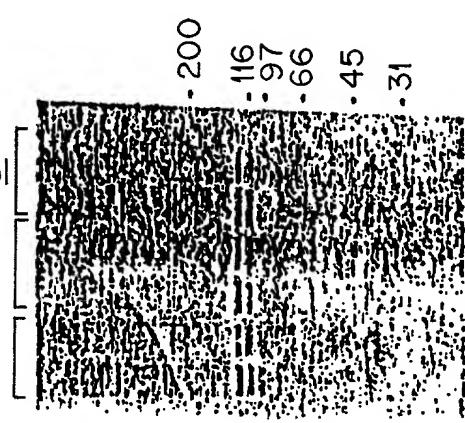


FIG. 11

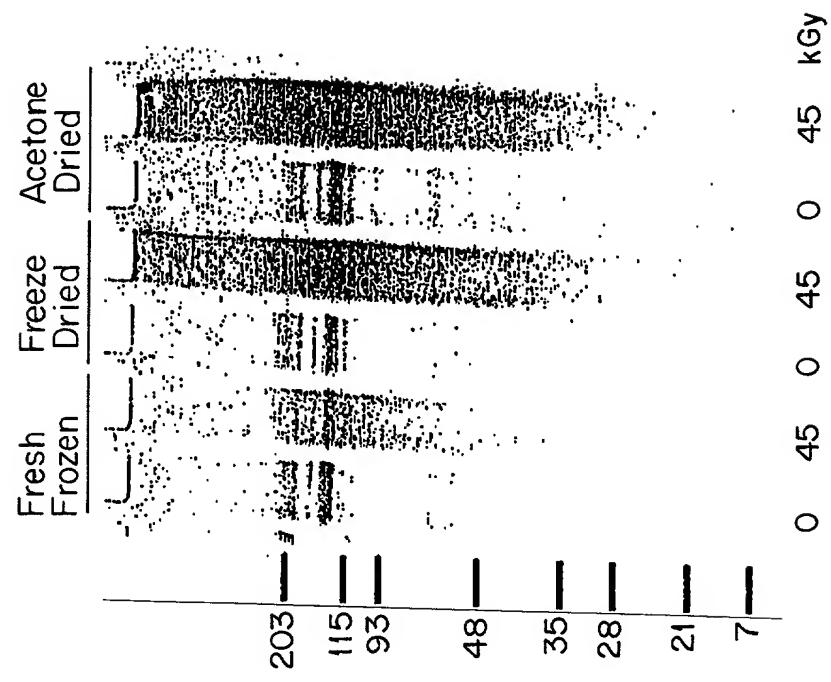


FIG. 12A

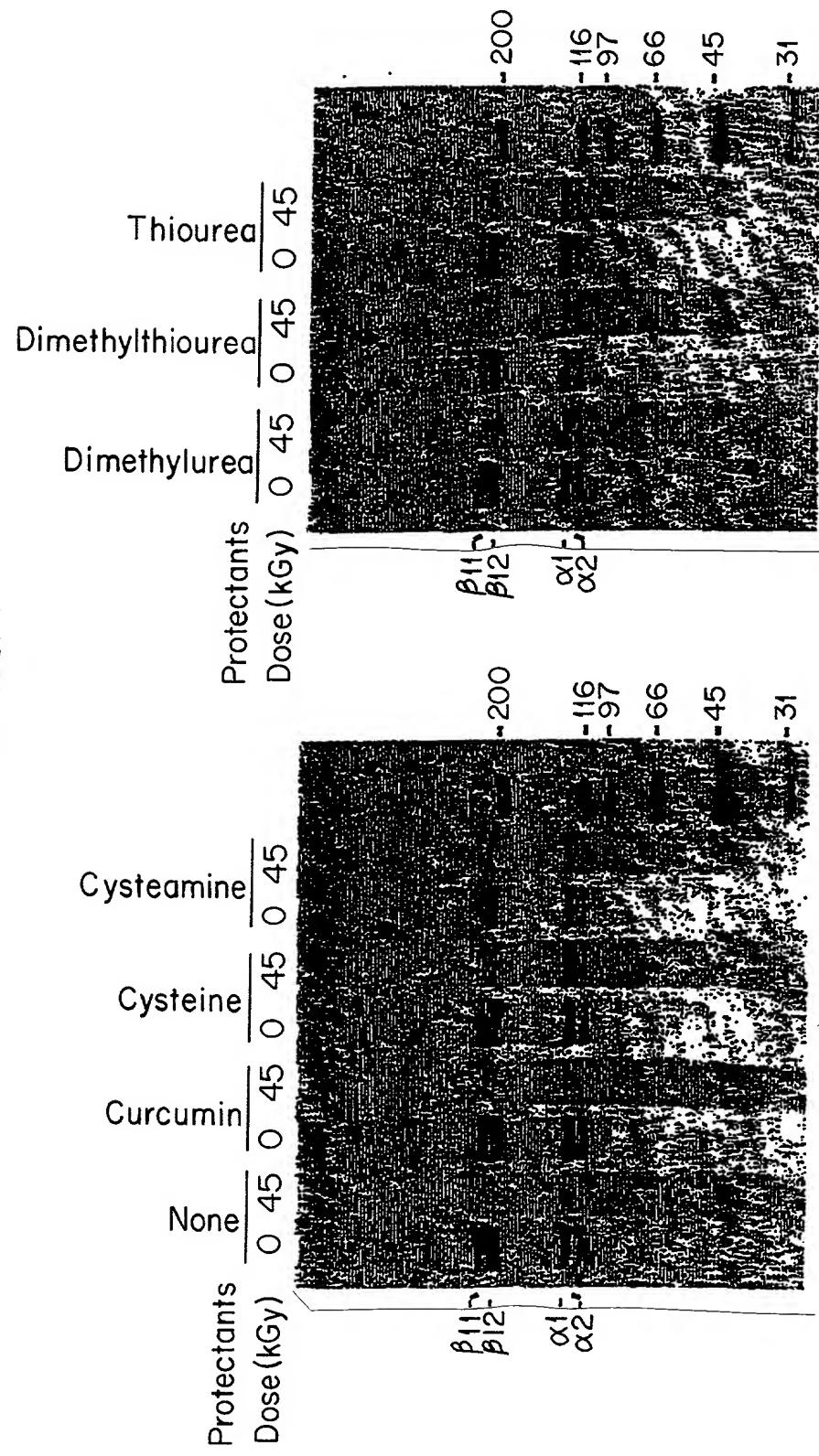


FIG. 12B

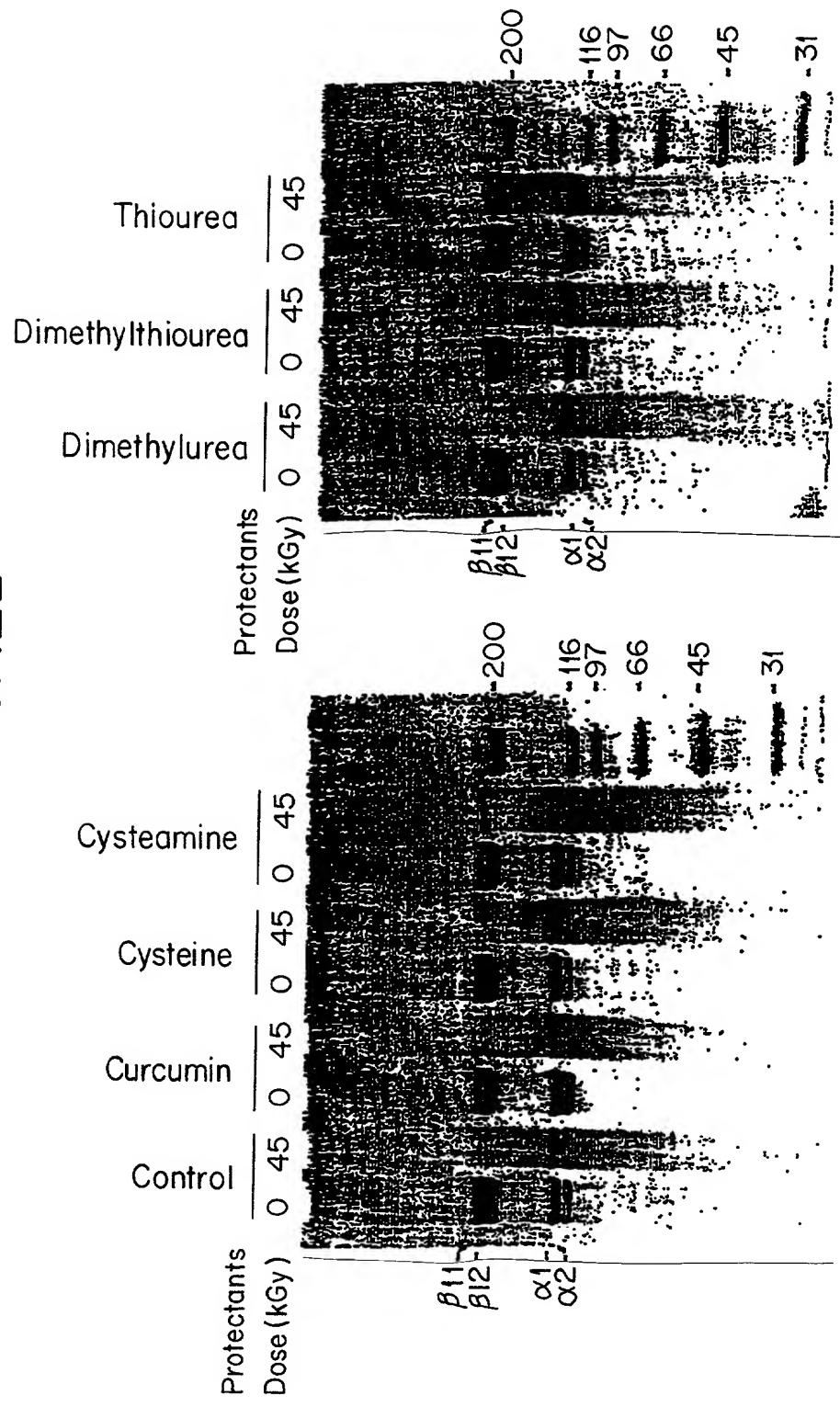


FIG. 12C

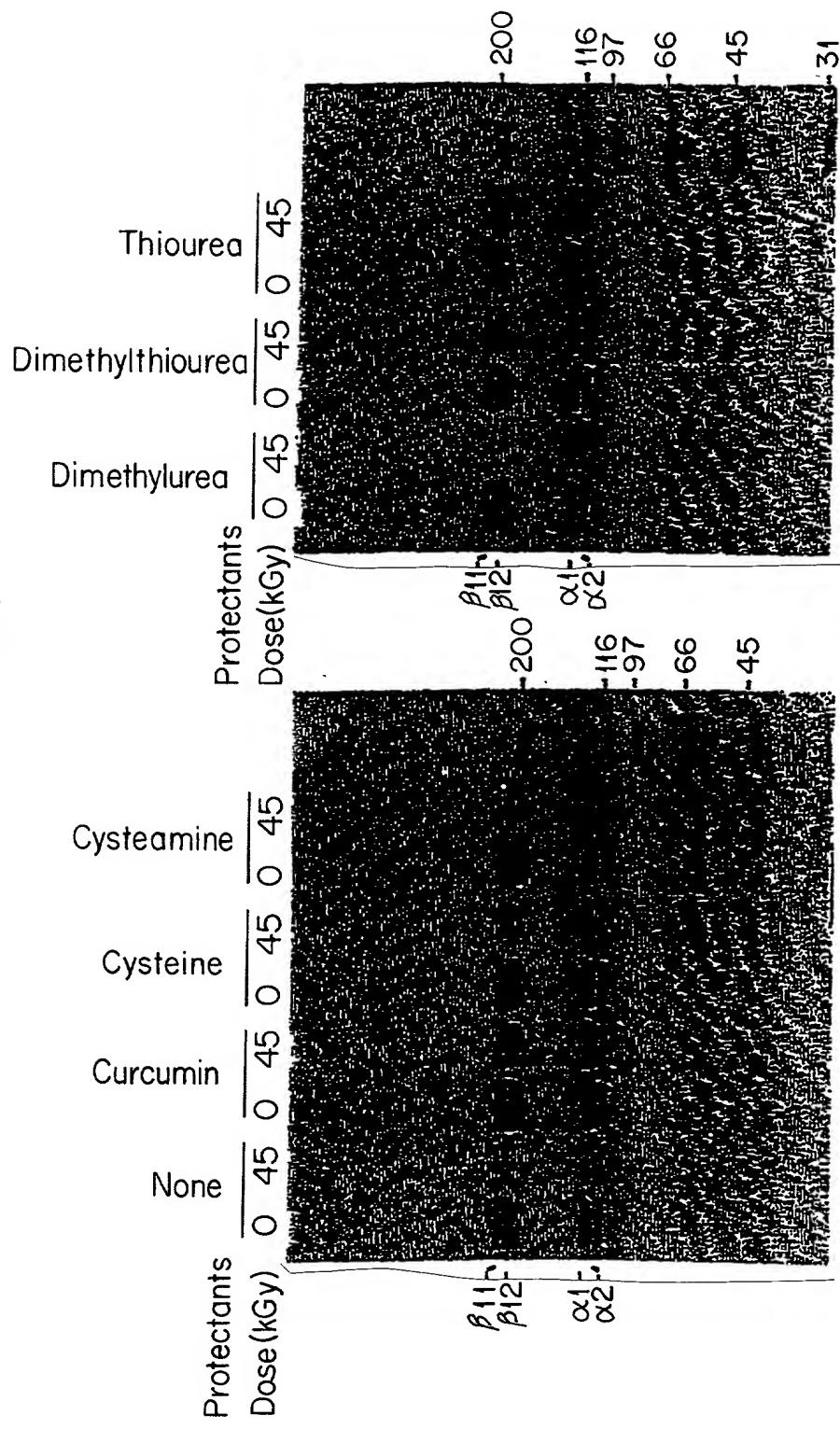


FIG. 13

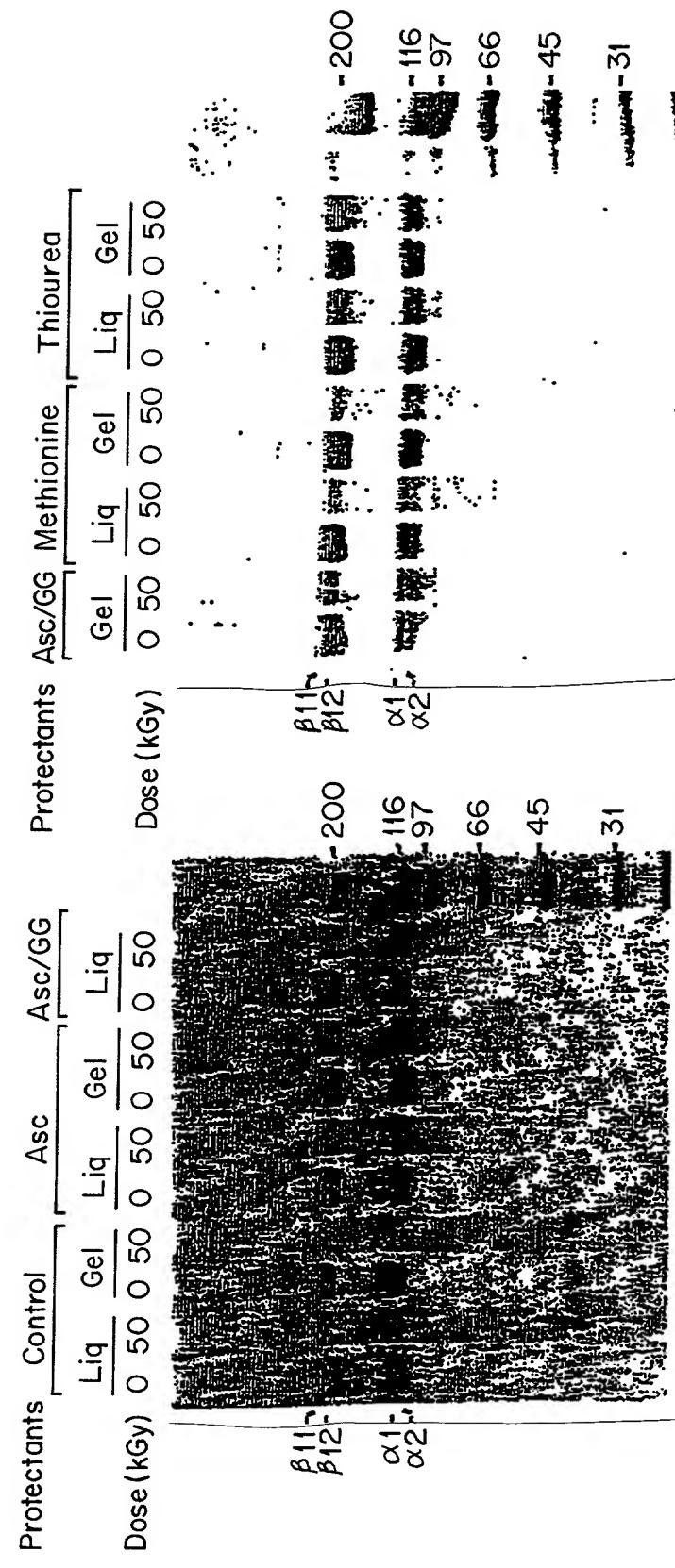


FIG. 14A

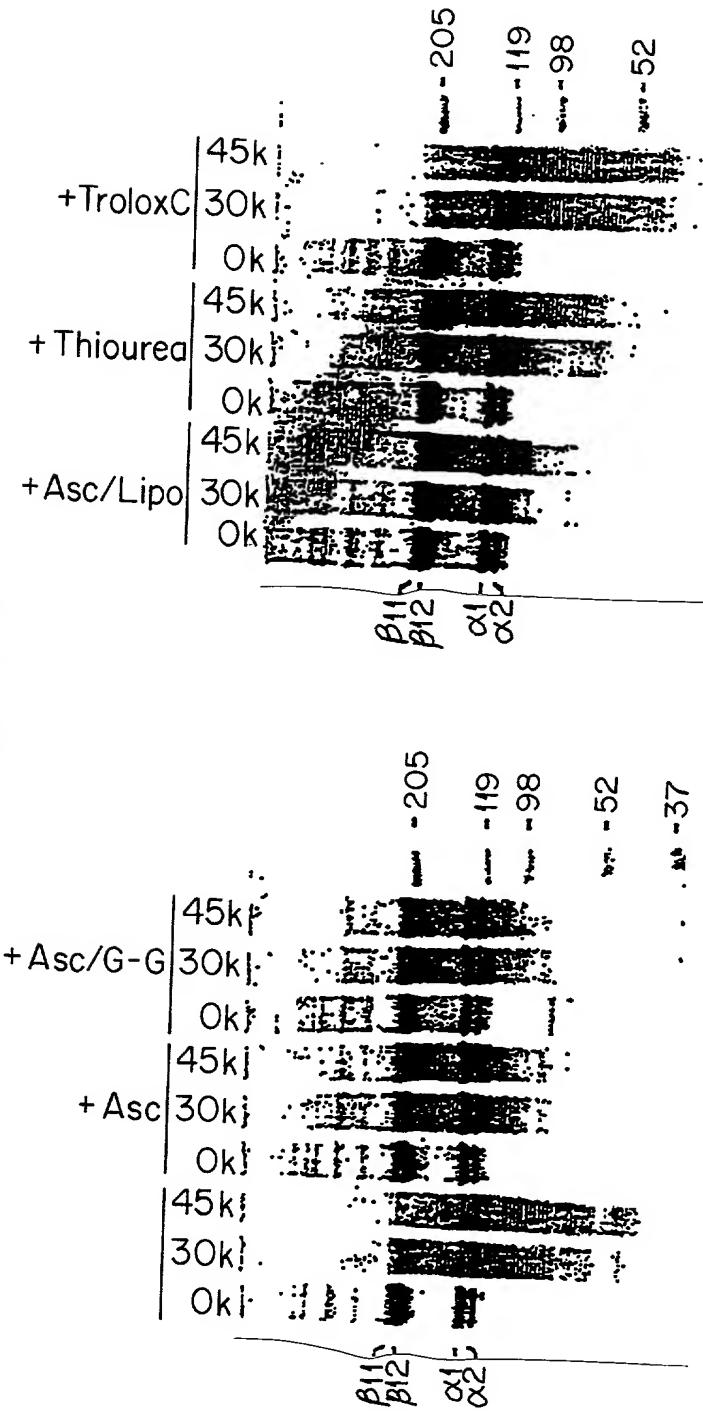


FIG. 14B

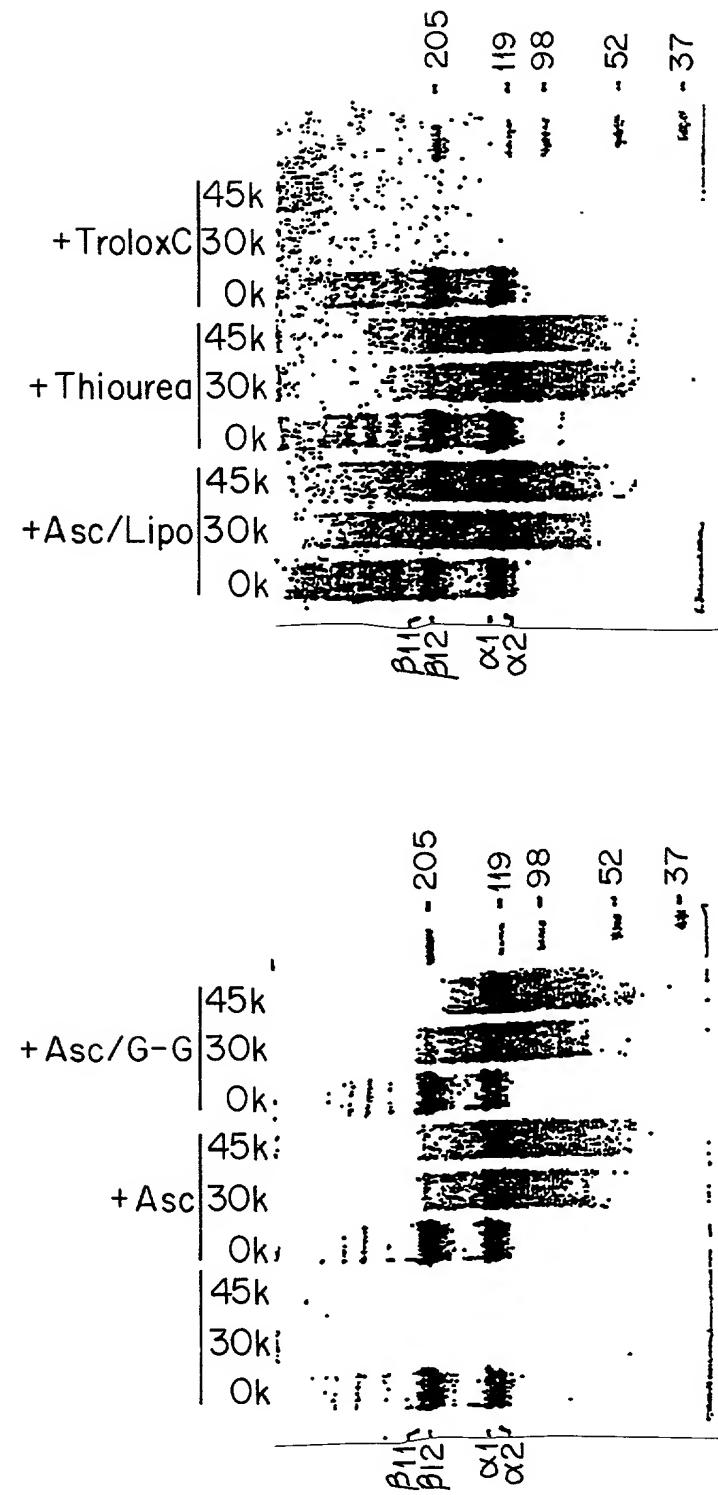


FIG. 14C

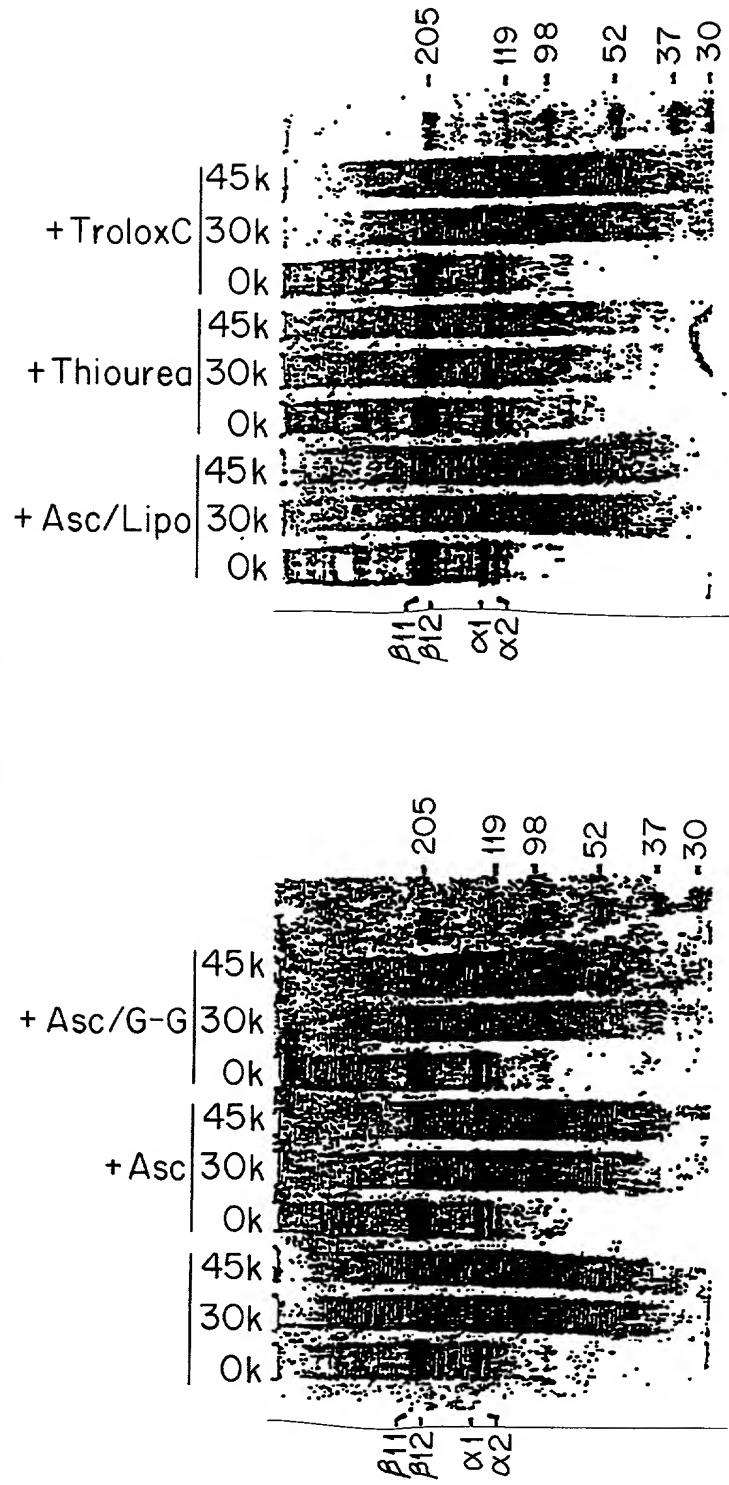


FIG. 14D

